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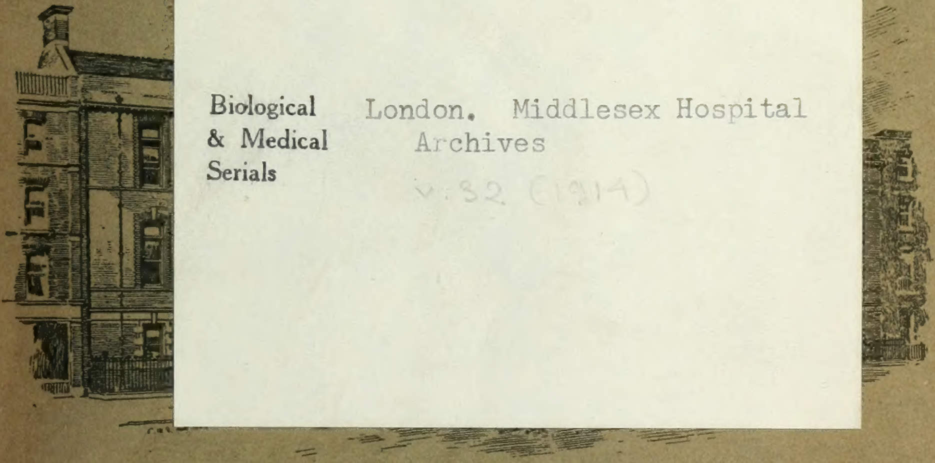

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The Middlesex Hospital

VOLUME II

Archives of The Middlesex Hospital.

THESE Archives are published with the object of recording work done in the Wards, Laboratories, and Special Departments of The Middlesex Hospital, and will contain contributions upon subjects connected with—

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2. The Investigation of Cancer,
3. Research carried on in the Pathological and Bacteriological Laboratories, and
4. The work of the Special Departments of the Hospital and School.

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ARCHIVES

OF

THE MIDDLESEX HOSPITAL

VOLUME II

Second Report

FROM THE

Cancer Research Laboratories

EDITED FOR THE CANCER INVESTIGATION COMMITTEE

BY

ALEXANDER G. R. FOULERTON, F.R.C.S.,

DIRECTOR OF THE BACTERIOLOGICAL AND CLINICAL LABORATORIES, THE
MIDDLESEX HOSPITAL; MEMBER OF THE COMITÉ FÜR KREBSFORSCHUNG;
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EDITORIAL NOTE.

ALTHOUGH demands made on my time by duties in another Department of The Middlesex Hospital compelled me to resign my official connection with the Cancer Research Laboratories in July of last year, I have, in accordance with the request of the Cancer Investigation Committee, undertaken the responsibility for the production of the present Volume of Reports.

This Volume contains such Papers by workers in the Laboratories as were completed at the time of my resignation of the post of Director last year, together with some particulars relating to the cases of malignant disease admitted during the years 1900, 1901, and 1902 into the General Medical and Surgical and the Special Cancer Wards of the Hospital, in which, either after removal by operation or by examination after death, it was possible to determine precisely the nature of the disease present.

In addition to Papers recording work carried out by members of the Hospital Staff, we are so fortunate as to be able to include in our Reports a Paper by Professor PEARSON of University College, London, dealing with the statistical investigation of certain phases of the incidence of malignant disease on the population generally. Professor PEARSON was good enough to consider critically the Paper which Messrs. HILLIER and TRITSCH have written on "Heredity in Cancer," and our best thanks are due to him for the trouble which he has taken in order to place in a true light the statistical evidence which we have been able to collect from the Hospital records as to some details of the incidence of malignant disease.

In the present stage of Cancer Research it has been necessary to devote considerable time to the investigation in the Laboratories of the statements of several writers, who, during the last three or four years, have claimed the discovery of a causative parasite of malignant disease, appearing in the form of one or other protozoon or yeast. All such alleged discoveries have been carefully considered and tested by experiment as fully as possible. And in the result it need only be said that of the several claims to the discovery of a specific "Cancer parasite" which have been made during the period, there is not one which has appeared to us to present such an element of inherent probability as to demand detailed notice in these pages.

I have to thank my colleague Mr. HILLIER for the care and time which he has given to the preparation of these Reports for the press.

ALEXANDER G. R. FOULERTON.

THE MIDDLESEX HOSPITAL, LONDON.
March, 1904.

CONTENTS.

PAGE

The Pancreas in Cases of Carcinoma. By W. T. Hillier and J. Strickland Goodall 1

Some Empirical Methods adopted in the Treatment of Inoperable Cancer, and their Results. By J. W. Glenton Myler 65

Heredity in Cancer. By W. T. Hillier and I. Tritsch...... 104

A Report on Certain Cancer Statistics of Messrs. W. T. Hillier and I. Tritsch, of the Cancer Research Laboratories, The Middlesex Hospital. By Professor Karl Pearson, F.R.S. 127

Some Points in the Treatment of Carcinoma by the X-rays. By Cecil R. C. Lyster 138

The Treatment of Carcinoma with Subcutaneous Injection of fresh Extract of Thymus and Thyroid Glands. By Alexander G. R. Foulerton 144

Statistical and other Details relating to 667 Cases of Malignant Disease admitted into The Middlesex Hospital in the three years, 1900—1902. By Alexander G. R. Foulerton and W. T. Hillier 148

LIST OF PLATES.

PLATE I.—Dissection of Normal Pancreas.

PLATE II.—Dissection of Pancreatic Ducts. Microscopical sections of Carcinoma of Pancreas and Duodenum.

PLATE III.—Microscopical appearances of the Pancreas from various cases.

PLATES IV. and V.—Microscopical appearances of the Pancreas in cases of Carcinoma.

PLATES A and B.—Curves illustrating the Age Incidence of Carcinoma in each Sex.

REPORTS

FROM THE

CANCER RESEARCH LABORATORIES.

'7

THE PANCREAS IN CASES OF CARCINOMA.

By W. T. HILLIER, M.R.C.S.,

SENIOR PATHOLOGICAL ASSISTANT, CANCER RESEARCH LABORATORIES,

AND

J. STRICKLAND GOODALL, M.B.,

LECTURER IN PHYSIOLOGY AT THE MIDDLESEX HOSPITAL.

The following account of the morbid changes met with in the pancreas is based on observations made in 138 post-mortem examinations, which included 88 cases of malignant disease. In the course of the histological investigation over 1000 specimens have been mounted and examined, and in most cases sections have been taken through the head, body, and tail of the gland, three sections (at least) having been taken from each of these situations and stained with thionin blue, hæmatoxylin, and hæmatoxylin and eosin respectively. Picrocarmine has also frequently been used.

Before describing pathological (*i.e.*, abnormal) conditions, it appears essential in the first place that the observer should have a thoroughly accurate knowledge of the structure of the normal gland, and in the second place that he should be able to accurately distinguish true ante-mortem histological changes from post-mortem histological conditions, mainly, if not entirely, the result of auto-digestion or bacterial invasion after death. With these ends in view, the anatomy and structure of the pancreas has been thoroughly and carefully examined in man and in some of the lower animals in, *firstly*, what we believe to have been its normal condition, *i.e.*, the organ has been investigated almost immediately after death in subjects that appeared to be perfectly healthy ; *secondly*, at varying periods after death, with a view to ascertaining the part played by auto-digestion and micro-organisms in producing changes in the gland tissue. By these means it has, we believe, been possible to fix (in our own minds, at any rate) a " normal " standard, and to eliminate auto-digestive or other changes from true pathological conditions produced during life. The work will be considered under the following headings :—

1. The structure of the normal pancreas.
2. The macroscopic appearance of the pancreas in malignant disease.
3. Primary malignant disease of the pancreas.
4. Malignant disease of the pancreas secondary to growth in some other organs.
5. Malignant disease of the pancreas from direct extension.
6. The condition of the pancreas in malignant disease when the gland is not directly infected or involved.

The Normal Pancreas.

Anatomy and General Morphology.

The pancreas in man is an elongated glandular organ of a very pale fawn colour, situated in the abdominal cavity behind the stomach at the back of the epigastric and left hypochondriac regions, on a level with the first and second lumbar vertebræ. It has a general resemblance to a dog's tongue in shape.

Its normal weight varies from 2¼ to 5¼ ounces, but considerable variations are met with, in some cases the pancreas weighing as little as ½ ounce, in others as much as 6 ounces. The average length is from 5 to 8 inches, its thickness from ½ to 1 inch, while its breadth usually averages about an inch and a half. It is usually described as consisting of the following parts, viz. : (*a*) Head, (*b*) Neck, (*c*) Body, (*d*) Tail, (*a*) *The Head* forms the right extremity of the gland, and is a roundish disc-shaped structure, which is closely invested by the concavity of the duodenum, the second, third, and fourth parts coming into intimate relation with it.

Near the left border of its anterior surface it is crossed by the superior mesenteric vessels, while the lower end is crossed by the transverse colon and transverse meso-colon. The superior and inferior pancreatico-duodenal vessels are also anterior relations.

Behind it lies on the inferior vena cava, left renal vein, aorta and common bile duct, the latter either grooving it or being embedded in its substance.

(*b*) *The Neck* connects the head to the body, and is usually about 1 inch long. Starting at the upper part of the anterior surface of the head, it passes in front of the termination of the superior mesenteric vein and commencement of the vena porta, turns upwards, forwards, and to the left to join the body. On its right side, at its attachment to the head, it is grooved by the gastro-duodenal and superior pancreatico-duodenal arteries, while anteriorly it is in relation with the first part of the duodenum, or, when the stomach is distended, with the pylorus.

(*c*) *The Body* extends from the neck to the tail, and with the latter usually measures 4 or 5 inches (10 to 12 cm.) in length. It is somewhat prismatic in shape, presenting for examination three surfaces (anterior, posterior, and inferior) and a superior border.

The anterior surface is concave, and looks upwards and forwards, and is separated from the stomach by the lesser sac. Near its right extremity a well-marked elevation—the omental tuberosity of His—can be made out.

The posterior surface lies in front of the aorta, superior mesenteric artery, pillars of the diaphragm, splenic vein, left renal vessels, left kidney, and left suprarenal body.

The inferior surface is narrow, and is in intimate relation posteriorly with the duodeno-jejunal flexure, jejunum, and transverse meso-colon.

The superior border is in relation with the cœliac axis, its hepatic branch passing to the right just above it, the splenic to the left, the latter being very tortuous and grooving the gland, so as sometimes to be quite surrounded by it.

(*d*) *The Tail* is the small terminal part of the pancreas. It turns sharply upwards and backwards, and lies close to the spleen. It is frequently defined from the body by a deep notch running in from its posterior surface (Fig. 1).

Variations in the Morphology of the Pancreas.

Numerous departures from the above type have been described, the most common being either what is known as (1) the Annular, or (2) Accessory pancreas. In annular pancreas the duodenum is more or less surrounded by pancreatic tissue, the gut being constricted so that dilatation of the stomach and duodenum ensues ([10], [43], [45]). In accessory pancreas more or less isolated masses of pancreatic tissue, having a definite duct which opens into the alimentary canal, may be found in various situations, the commonest positions being :—

1. The wall or upper part of jejunum (Klob and Zenker) ([17], [50]).
2. Wall of duodenum (Weichselbaum) ([48]).
3. Wall of ileum (Zenker and Nawwerck) ([50], [30]).
4. Wall of stomach.

In the latter organ the tissue may apparently be met with in almost any situation, Gegenbauer ([9]) having described one on the lesser curvature about one inch from pylorus, Wagner ([46]) in the anterior wall, while Klob ([17]) has described an accessory pancreas on the anterior surface. In addition to the above, that part of the pancreas lying behind the superior mesenteric vessels may be completely isolated from the main part of the gland and form a distinct lesser pancreas (Fig. 1) ; again, the head may be separated from the body, or the tail may be isolated or bifid.

The Ducts.

Various descriptions are given of the pancreatic ducts, but two are usually to be made out, entering the duodenum separately.

The chief duct (canal of Wirsung) traverses the gland from left to right, being formed by the fusion of the lobular ducts in the region of the tail, and receiving in its course the ducts from the other lobules (Fig. 2). Passing in a more or less straight course from tail to neck, it turns downwards, backwards, and to the right through the substance of the neck and head, gradually approaching the posterior surface. As it traverses the head it may receive a well-marked tributary from the lower and back part of the gland. This duct is known as the Accessory duct or duct of Santorini.

The main duct joins the bile duct just before reaching the duodenum, into which it opens, the opening being placed on a longitudinal fold of mucous membrane known as the plica longitudinalis.

If the duct of Santorini is still patent it opens into the duodenum about one inch above and slightly ventral to the opening of the main duct, the orifice being borne on a small papilla, the caruncula minor of Santorini.

The histological characters of the duct are dealt with under the histology.

*Variations in the Ducts.**

Of the numerous abnormalities described in connection with pancreatic ducts, the following appear to be the most common:—

1. There may be only one duct extending through the substance of the gland and opening into the duodenum at the caruncula minor.

In this case the common bile duct opens separately in its usual position.

2. The Canal of Wirsung, Duct of Santorini, and Common Bile Duct may open separately into the duodenum.

---

* The form, position, and ducts of the pancreas differ considerably in different animals; for example, in Elasmobranch fishes it is a laterally compressed organ with a slightly expanded anterior end. It exhibits a small ventral lobe and is closely attached to the intestine, lying between the distal limb of the stomach and the large intestine, dorsal to the long limb of the spleen.

The duct runs through the substance of the gland close to its ventral border, leaving it at the posterior angle of the ventral lobe to enter the ventral wall of the intestine behind the pylorus. It then runs obliquely through the intestinal wall for about ½ inch, and finally opening into the outer side of the intestine opposite the attachment of the spiral valve.

In the salmon, on the other hand, the pancreas appears to be represented by a series of cæcal tubes, which open directly into the gut.

In amphibians (Rana) the pancreas is a compact irregularly-lobed pinkish organ

3. The accessory duct may be absent.

4. Oser has described four distinct openings into duodenum, one from common bile duct, one from duct of Santorini, one from main duct, and one from an abnormal duct in head.

5. Two ducts may run throughout gland.

The blood-supply of the pancreas is derived from the splenic and hepatic branches of the cœliac axis, superior pancreatico-duodenal of gastro-duodenal of hepatic, inferior pancreatico-duodenal of superior mesenteric, and the inferior pancreatic branch of the same vessel; their course in the gland is described in the histology.

The Microscopic Structure of the Normal Pancreas.

The pancreas is a tubulo-racemose gland which, as noted above, differs in form and position in different animals: in some, *e.g.*, rabbit, being diffuse and scattered throughout the mesentery; in others being distinct and compact, and presenting

which lies between the duodenum and stomach, its long axis being antero-posterior, and the whole organ freely movable. There are numerous ducts which open into the bile duct, which passes through the organ on its way to the duodenum.

In the salamander the pancreas is represented by a small triangular organ closely applied to the intestine, into which numerous small ducts open.

In birds it forms a compact gland which lies in the loop of the duodenum, to which it is closely applied. There is usually a well-marked groove in which the gut is placed. It has three ducts, all of which open into the distal limb: two leave the right border near the middle, run forward parallel to each other to open close together into the distal limb near the middle, and in close relation to the right bile duct; the third duct is the largest and leaves the gland near the anterior end, runs forward and opens into the distal limb of the duodenum close to its junction with the ileum.

In mammals very diverse appearances are presented by the pancreas; in rabbits, for example, it is a diffuse pinkish organ scattered throughout the mesentery of the duodenal loop. It is most dense and compact anteriorly. Its duct commences in front, runs back through the gland, receiving many small ducts in its course, finally opening into the inner side of the distal loop of the duodenum three inches from the bend.

In the dog the pancreas consists of a horizontal and (more or less) vertical portion; from the upper (*i.e.*, anterior) aspect of the horizontal limb two small lobes can be made out.

In the sheep similar parts can be identified, while in the bullock the pancreas is a many-lobed structure consisting of three main lobes, which diverge from what appears to be the head.

more or less marked lobes and lobules. Histologically, however, it always presents the same essential features, which, for purposes of description, may conveniently be summed up as follows:—

(*a*) The gland parenchyma.
(*b*) The interstitial connective tissue.
(*c*) The duct and its ramifications.

(*a*) *The Gland Parenchyma.*

This consists essentially of spherical, tubular, polyhedral, and occasionally convoluted acini, composed of a single layer of more or less columnar polyhedral secreting cells, the exact appearance of which differs at different times. The cells are characterized by presenting two well-marked zones, the outer being clear and homogeneous often exhibiting faint longitudinal striations, made more obvious by macerating the gland for a few days in neutral ammonium chromate ([41]), and staining well with carmine, logwood, and other similar stains. This is known as the boundary of parietal zone of Bernard. The inner zone in a fresh gland exhibits numerous discrete granules, which may be fixed, and stained with osmic acid. This is known as the granular zone, and stains badly with carmine or logwood, and hence appears lighter than the outer part of the cell in an ordinarily stained specimen. Lying between these two zones, in the outer rather than the inner, is a very large spherical or oval nucleus of the usual structure, while a para-nucleus—a somewhat circular structure staining more readily than the rest of the cell—is frequently present. Gaule and Nicolaides ([8], [31]) consider that this structure is derived by extension from the nucleus; if so, it is in all probability the true nucleolus. This para-nucleus is, according to Ogata ([32]), the chief source of the zymogen granules described above.

In addition to these secreting cells, small wedge-shaped cells have been described lying in between them and resting on the basement membrane. These are known as the cuneate cells of Podwyssotzki ([36]). The relative size and exact appearance of the zones described above varies at different times during life and after death. The variations occurring during life are well known, and are consequently very briefly mentioned here, but the changes met with post-mortem, being of more direct importance in these observations, are more fully dealt with. In a "living" resting gland, *i.e.*, a gland which has not been secreting and is "loaded," these cells are large, the basement membrane bulged, the lumen of the acinus practically obliterated, while the granular inner zone is wide and full of granules, the nucleus being very indistinct and usually quite invisible, while the outer zone is narrow and clear. The whole cell appears to stain badly.

In a gland after secretion the cells are small, nucleus distinct, the inner zone narrow, and contains few, if any, granules, or may be altogether absent, while the outer zone is relatively large, the nucleus distinct, the whole cell appearing to stain well. In a post-mortem gland the cells, obtained from a human pancreas about four hours after death, when examined in fresh hydrocele fluid exhibited a somewhat triangular or oval outline, each cell presenting two well-marked zones, the inner being broad and containing many granules, the outer zone being small, clear, and faintly striated.

The two zones were intensified by staining. On being kept the cells appeared to swell up and become more or less spherical, but the zones could still be distinctly observed up to 12 hours after death.

The cells, when examined from 12 to 16 hours after death, appeared more or less homogeneous; no zones could be differentiated, and no granules observed either before or after fixing and staining. The nucleus could, however, be made out by means of a nuclear stain.

With carmine the whole cell stained irregularly and diffusely. When examined from 20 to 48 hours after death the cells appeared irregular, shrivelled, homogeneous, and often colourless, and bore little, if any, resemblance to the cells of the fresh pancreas.

In a piece of the same pancreas not preserved in hydrocele fluid similar changes to the above occurred, but much more rapidly.

From the above, observations made on the pancreatic *parenchyma* obtained more than 16 hours after death appear to yield little reliable evidence of true ante-mortem pathological conditions, and hence are of little, if any, value.

Coincident with the post-mortem changes above described, a change can be clearly demonstrated in the digestive activity and chemical composition of the gland.

In the lumina of the secreting acini small cells known as centro-acinar cells may often be observed. These were first described by Langerhans, and are usually said to be fusiform or stellate in shape, and to send processes in between the secreting cells of the acini. This may be true of some of the lower animals, but in man they most often appear to be irregularly spheroidal in shape, and to contain one or more nuclei, the poly-nuclear form, which stains well with eosin, being the most common.

The nature and function of these cells is unknown, but they are usually regarded as being directly continuous with the cells lining the small ducts. The secreting cells rest on a homogeneous basement membrane, outside which is a rather delicate but firm membrane, consisting of fibrils similar to the reticular fibres of the liver and spleen, but which are here in relation to the alveoli (Podwyssotzki).

(*b*) *The Interstitial Connective Tissue.*

This varies considerably in amount and arrangement in different animals, but in all cases appears to be of a loose fibro-areolar type.

In man this interstitial tissue is reduced to a minimum, so that the gland parenchyma, blood-vessels, ducts, etc., derive only the smallest possible amount of support.

The connective tissue passes in between and surrounds the acini, binding them together to form lobes and lobules, but in a perfectly healthy fresh human pancreas it is present to so small an extent that it is barely discernible in a microscopic specimen. The interstitial tissue contains the blood-vessels, nerves, lymphatics, and ducts, as well as cellular structures, first described by Langerhans, and known as inter-aciniar cell clusters or islands. As these structures appear to be of great practical importance in connection with both the physiology and pathology of the pancreas, they will be described in detail.

The islands of Langerhans occur in both cold and warm blooded animals, but differ considerably in size, shape, position, and number. Generally speaking they are oval or spherical in outline, and appear to consist of a loosely-coiled column of more or less four-sided polyhedral cells which are smaller than those of the secreting acini. The nuclei of these cells vary in size, and are both larger and smaller than those of the acinar cells, but are never lobed (PLATE III., Fig. 3). They have also a few granules, which granules Ssobolew (14) claims to have shewn are increased in number after a carbo-hydrate diet.

Lewaschew (23) states that prolonged stimulation of the gland causes ordinary acini to become converted into islands, a statement denied by Opie and other observers. Not unfrequently the islands are irregular in shape and somewhat branched, instead of being circular, and this seems to be particularly true of certain of the lower animals (*e.g.*, lacerta viridis).

The large islands appear to have a distinct capsule of connective tissue, but the irregular and smaller forms receive no such covering. A network of large convoluted capillaries permeate the islands (Kuhne and Lea, [18], [20]), which all observers seem agreed have a very close and intimate relationship to the vascular system.* Their exact relation to the lymphatics does not, however, seem to be definitely determined.

No ducts can be made out entering the islands, but a duct may occasionally be seen running up to one.

In almost all animals the islands appear to be most numerous in the tail of the gland. In man they are most frequent in the tail and head, only relatively few being found in the middle of the organ.

As regards the position of the islands, and the relationship which they bear to the rest of the lobule, in man it appears to be indefinite, but in the splenic end of the cat's pancreas there is, according to Opie (33), one centrally situated island in each lobule. This appears to be true for the splenic end, but in other parts of the cat's pancreas two, three, or even four islands may be found in a single lobule.

---

* This is certainly true in some of the lower animals (PLATE III., Fig. 4). In man injection of the pancreatic vessels is a task presenting considerable difficulties, owing apparently to the gland very rapidly undergoing post-mortem softening, and to the blood-vessels being usually very thin walled and badly supported. It seems, however, that in man the islands are surrounded by a capillary plexus, which sends in a vessel at one or more points (PLATE III., Fig. 5). These observations must, however, not be taken as absolute, as even the best injected specimen did not appear to be completely injected.

PLATE III., Fig. 6, shews the presence of blood in an island of Langerhans, from a man aged 61, carcinoma of stomach with unusual vascular and blood changes. Hæmorrhages occurred in several places in parts of the body, and the island of Langerhans thus appears to have been so affected. This case has been described by Dr. W. Pasteur and C. Price-Jones, M.B. ("Clinical Society's Transactions," vol. xxxiv.).

The exact origin and nature of these structures is not definitely known, but Opie (33) considers that their origin is essentially similar to that of the gland acini proper,* while as regards their nature the following views have been advanced :—

(*a*) They are degenerated acini.

(*b*) Embryonic remains.

(*c*) Ductless glands embedded in the pancreatic parenchyma and forming an internal secretion, which leaves the gland by either the blood or the lymph.

The pancreas, as is well known, plays an important part in carbohydrate metabolism, and its extirpation is followed by glycosuria, wasting, and death, as has been shewn by Von Mering (25), Minkowski (27), and many other observers (4, 11, 12, 13, 14, 14).

It appears tolerably clear that this diabetes is connected with the islands of Langerhans and not the secreting acini, as if the duct of Wirsung is injected with paraffin digestive derangement may ensue, but diabetes does not occur (41). Then, again, in severe and fatal cases of diabetes in man the islands of Langerhans not infrequently shew definite pathological lesions. Opie (33) and others have recorded cases in which a definite peri-insular fibrosis existed, while Wright and Joslin (49, 16) have described hyaline degeneration of the islands in two out of nine cases of diabetes in which they examined the pancreas post-mortem. From most diseases of the pancreas, however, these islands appear to enjoy a remarkable immunity; hence the comparative rarity of glycosuria in malignant and other diseases even when the pancreas may be greatly involved.

---

* Schulze ("Arch. f. Mikros Anat.," bd. lvi., s. 491—509) considers that they have an independent origin. Merkel and Bonnet ("Ergebnisse der Anat. Entwick," bd. ix., 1900, s. 150) consider that in vertebrates two types of pancreas exist: in cyclostomata the primitive pancreas occurs as a distinct organ, whilst in cetaceans (probably also in reptiles) the primitive pancreas is represented by tubular cell islands, which still maintain a connection with the duct system.

In the higher vertebrates this connection is lost, the pancreas proper becomes predominant, while the primitive pancreas remains as the cell islets.

If the pancreas is stained with methyl violet, treated with picric acid, and decolourized in oil of cloves (method of Claudius for Bacteria), the nuclei of the islands shew less chromatin than those of the acini.

Some of the main differences between the acinar and island cells may be briefly summarized as follows:—

Alveolar Cells.	*Island Cells.*
I. Pyramidal with distinct zones.	I. Cubical with no differentiated zones.
II. Arranged in alveoli.	II. Arranged in convoluted columns.
III. Nuclei large and fairly constant in size.	III. Nuclei vary considerably in size.
IV. Nuclei stained deeply by Claudius' method.	IV. Nuclei only partly stained by Claudius' method.
V. Cell bodies stained violet by Thionin.	V. Cell bodies stained blue by Thionin, but contain a very finely granular material which stains violet.
VI. Cell-bodies partly stained with logwood.	VI. Cell-bodies not stained by logwood, but well stained with eosin.

The Blood Supply of the Pancreas.

The blood-vessels of the pancreas are as follows: The splenic and hepatic branches of the cœliac axis, superior pancreatico-duodenal of gastro-duodenal of hepatic, inferior pancreatico-duodenal of superior mesenteric, and the inferior pancreatic branch of the same vessel. Their intra-glandular course is carefully described by Bohm and Davidoff (2, 5), who state that after entering the gland where the pancreatic duct leaves it they break up into small branches in the lobules. These in turn form a capillary network round the acini. These capillaries vary much in size and often exhibit dilatations in their course.

The nerves of the pancreas come from the solar plexus, and their termination within the organ has been carefully worked out by Cajal (3), Sala (38), Muller, Dogiel (6), and others, who describe large numbers of non-medullated fibres which form plexuses round the exeretory ducts and blood-vessels. These plexuses give off fibrils which form peri-acinar networks, from which terminal fibrils pass into the secreting cells. On the course of the nerves numerous small ganglia can be made out, but their function is unknown. The relationship which the islands of Langerhans bear to the nervous system does not appear to be definitely known.

In addition to the nerve described above in the interstitial connective tissue of the cat's pancreas numerous Paccinian bodies may be perceived; their function, however, is quite unknown. Paccinian bodies are not seen in man.

(c) *The Duct and its Ramifications.*

The pancreatic duct has been shewn by Muller to commence as small intra-cellular clefts, which open either into acini directly, or into the inter-cellular canals of Saviotti (39) (minute channels between the secreting cells), which in turn run into the lumina of the acini, whence acinar, intermediary, or intercalary ducts pass. These intermediary ducts from the acini forming a lobule join to form the lobular ducts, which in turn unite to form the main excretory duct or ducts as the case may be (Fig. 2).

Structurally the acinar ducts consist of a single layer of flattened or cubical cells resting on a basement membrane, while the large ducts have well-marked columnar cells resting on a basement membrane, outside which is a thick fibro-muscular coat. In the walls of the large ducts numerous small glands can be made out by other observers.

The Development of the Pancreas.

As regards the early origin of the pancreas there appears to be as much difference of opinion as there is on most other embryological problems. The majority of observers agree that it is developed from that part of the primitive fore gut, which subsequently becomes the duodenum, but as to how or when this occurs there is considerable difference of opinion.

Minot (26) considers that it originates from a single dorsal diverticulum which grows back into the mesentery. His (15) says that it originates about the fourth week as a dorsal outgrowth from the intestinal canal, nearly opposite the ventral diverticula, which subsequently form the liver, a view also supported by Hertwig and other observers.

Stoss (12), on the other hand, considers that it originates from four diverticula, two ventral, and two dorsal, while Felix, who has investigated the matter in the human embryo, cat, and chick, makes the following statements:—

In the human embryo there are three diverticula, one dorsal, one left (rudimentary) and one right ventral. The two ventral fuse together to form the true pancreatic duct, while the dorsal persists to form the duct of Santorini (7).

In the cat there are only two diverticula, one ventral and one dorsal (both of these enter into the formation of the gland), while in the chick three diverticula are found, one being dorsal, two ventral; all these enter into the formation of the organ.

The diverticula above referred to are at first solid, but later become hollowed out to form ducts and acini, which grow into the mesoblast surrounding the intestine. This mesoblast forms the capsule of the organ, and from it connective tissue grows in and divides the gland into lobes, lobules, and acini.

Continued development associated with non-fusion of the separate diverticula results in the abnormality known as accessory pancreas, many cases of which have been described, while non-fusion of the pancreatic and hepatic ducts, at first quite distinct from one another, results in some abnormality of the pancreatic ducts, many variations in which have been recorded.

The Macroscopic Appearance of Pancreas in Malignant Disease.

The macroscopic appearances of the pancreas as seen in the post-mortem room are various; some of them may be attributed to changes which have occurred after death, and of these that which is commonly seen is a reddening and softening of the organ, while on section there is a blurring of the outline of the lobules. Rarely the pancreas becomes of a dark grey colour, and portions cut off float in water. The former is usually seen rather in persons who have much fat. The latter has been seen in a case in which the other organs were also blackened and contained gas bubbles.

The appearances due to changes after death having been discarded, the pathological appearances proper may now be considered under the three several headings: Primary malignant disease; secondary deposits; extension from a primary malignant growth elsewhere, and where the pancreas is unaffected.

When the pancreas is unaffected by malignant disease its appearance is by no means always the same. Occasionally it is quite small in all its proportions, and weighs only an ounce or less. More often it is harder than in health; the hardness may result in producing a dense compact organ, or it may affect only the lobules, which will be very loosely united.

Fatty areas in the organ are frequently seen beneath its peritoneal covering. If the organ be cut into it is found that this fat is in the connective tissue, and not in the parenchyma, but conforms to the shape of the gland.

A fatty pancreas is seldom or never small.

Little white opaque specks sometimes seen in these fatty areas are probably due to necroses of the fat.

The complete conversion of the entire organ into fat is very rare. There is a specimen shewing this in the Museum of the Royal College of Surgeons; this, however, was not from a patient who suffered from malignant disease.

Fatty change appears to be most common along the upper and lower borders.

In a few instances a discolouration of the organ is met with; the atrophied specimens are usually somewhat dark, but it also occurs under other conditions, *e.g.*, in some cases of diabetes. The colour is dark grey, rather like the blackening attributed to decomposition.

A condition occasionally met with in the post-mortem room must be here mentioned, as it may have an important bearing on the pathology of pancreatitis. In many cases the duct of the pancreas appears widely patent, and is stained by a fluid at once recognized as bile. This bile staining extends quite to the tail end of the gland, and pieces of it placed in formalin shew in the immediate vicinity of the duct a dark green colour.

On the other hand, the duct may be widely patent but empty, while most often a colourless semi-solid substance fills the duct, but no bile is found there. Microscopically this substance is found to consist of (more or less) columnar and flattened cells.

There is no macroscopical appearance of the pancreas, in cases where it is not infected, which can be regarded as characteristic of its having belonged to a patient who suffered from malignant disease.

Primary Carcinoma of the Pancreas.

The etiology of carcinoma affecting the pancreas is no less obscure than that of the disease attacking any other organ. There are, however, points in the history and appearances of cases which may have some bearing on the question.

The disease as a rule runs a rapid course, the time from the first onset of symptoms being in a few cases less even than a month, while it seldom seems to much exceed six months. In many cases, however, the patients have suffered from such symptoms as vomiting, pain in epigastrium, jaundice, or constipation on and off or continuously for a year or more before death, but usually there is in the history of such cases evidence to support the belief that these symptoms were not altogether produced by the malignant disease of the pancreas.

From these histories, and still more so if the surmise be correct that the course of malignant disease arising in the pancreas seldom exceeds six months, the suggestion that some form of chronic irritation is an important etiological factor may well be entertained; moreover, it is well recognized as such in connection with many other places of origin of carcinoma.

In the course of examination after death of bodies from the Cancer Wards, it has formed part of the routine to test the patency of the cystic duct and common bile duct by expressing the bile into the duodenum from the gall bladder. This may or may not have anything to do with the fact, which, however, is sometimes noted, that portions of the pancreas preserved in formalin solution afterwards shewed the conspicuous rich dark green of bile staining of the duct and its immediate neighbourhood; and in the fresh organ, in one case at least, a yellow fluid precisely like the bile in the gall bladder of the same case was found in the pancreatic duct, even at quite the tail end.

In as many cases as not the duct of the pancreas is found filled with a semi-solid colourless material, which would prevent any influx of bile, and in other cases the duct is found to be empty. The former condition points to the fact that the duct is not always liable to an influx of bile; the latter condition seems to indicate that, even when the duct is empty, it is not necessarily easy for bile to flow in, so that its presence in the ducts at autopsies is probably not artificially brought about at the time.

It is therefore possible that sources of irritation might reach the pancreas directly in this way, and such a conclusion is forced upon one after reference to Robson and Moynihan's ([37], [29]) account of pancreatitis.

In adults the duct of Santorini is not often open into the duodenum, and the secretion therefore must then flow in a backward direction and so rather tend to retard the flow from the body of the gland, and favour the extension inwards of the growth of micro-organisms if any gained admission.

Mirallié ([28]), in a paper dealing thoroughly with the clinical aspects of carcinoma of the pancreas, says: "If the cases are carefully looked into where glycosuria is recorded as present, one is struck by the fact that it is in those cases in which the illness has been of long duration, a year or more; it is in these cases, where the patients have been under observation for a long time, and since the onset of events, that glycosuria is noted."

This would seem remarkable indeed if the fact that glycosuria is present should indicate that the case would run a long course; and it does not seem unreasonable to suggest that carcinoma in these cases has arisen as a sequel to the disease which produces glycosuria, rather than that glycosuria is a symptom of carcinoma of the pancreas.

It may be worthy of remark that the most frequent site for a primary growth in the pancreas is at the head end, and that the usual growth is a spheroidal-celled scirrhus growth. This site of origin corresponds closely with the position of the junction of the ducts of Santorini and Wirsung, the place of union of two distinct hypoblastic buds, one arising from the dorsal aspect of the gut above the entrance of the bile duct, the other arising from the ventral aspect below this level.

Symptoms.

The symptoms of primary carcinoma can be accounted for rather by the position of the growth and its physical effects, than by any physiological action on the part of the neoplasm.

Very often, as stated above, the symptoms are, with some alteration, merely a continuation of a previous condition, but they may be almost all arranged under four headings. These are: Symptoms produced by pressure on the ducts and their consequences, symptoms due to interference with the functions of the gland, symptoms due to pressure on nerves or ganglia, symptoms due to secondary growths or to degeneration of the primary growth. Under the first heading are some of the most important of all the symptoms. No one symptom is constant, and a case seldom presents even all the typical ones. Perhaps of all the symptoms none is so frequent as jaundice; it may be the ordinary icterus such as is seen every day, but the characteristic type is a persistent jaundice and gives the patient a deep brown hue. Dr. Hale White (12) regards this as pathognomonic of cancer obstructing the common bile duct.

Bard and Pic (1, 35) affirm that jaundice invariably occurs when the head of the pancreas is the seat of disease, but Mirallié modifies this statement, though it is seen in the immense majority of cases. In those cases where jaundice does not occur, it is attributed by Mirallié to the variable position which the bile duct may occupy in relation to the pancreas.

In a very interesting paper, "On the clinical significance of colourless or clay-coloured stools unaccompanied by jaundice, and their connection with disease of the pancreas, and on the part played by the pancreas in eliminating bile from the intestines" ("Trans. Med. Chir. Soc.," vol. lxxii., p. 257), the author, Dr. Walker, brings forward good evidence to shew that the brown colour of the fæces is dependent on the mutual reaction of the bile and pancreatic juice in the intestinal tract, and that in disease a deficiency of the pancreatic juice will, equally with a deficiency of bile, cause the pathological condition of colourless or clay-coloured stools. He also points out that if the fæces were stained simply with bile they would appear, like other things stained with bile, bright yellow, instead of being, as they are, brown.

Now, when patients exhibit this deep brown persistent jaundice it seems not unlikely that in these cases the colour is due to the mutual reaction of the bile and pancreatic juice, and so indicates obstruction of the ducts which convey both secretions, and possibly the passage of both into the circulation.

Owing to loss of the pancreatic juice and its fat splitting ferment, and, in the light of Pawlow's researches, to the absence also of bile (34), is due, it is believed, the presence of a fatty or oily layer floating on the top of the stools, which are very offensive, though the odour is not that of putrefaction.

Symptoms which accompany jaundice—depression, irritation of the skin, a slowness of pulse rate—occur, and death in coma from toxæmia is a common termination when patients are of the dark brown colour. Secondary to the obstruction of the bile duct are distension of the gall bladder and enlargement of the liver, the former being a valuable aid in diagnosis. Secondary to the loss of the secretion to the intestines and their contents may be reckoned the rapid emaciation, through failure to digest, and possibly constipation from loss of the bile and pancreatic juice.

According to Bard and Pic "the pancreatic juice being a very active digestive fluid, its continual entrance into the system is all the more harmful," so that wasting is due to a positive cause as much as to a negative one, according to them.

It may be mentioned here that the loss of pancreatic secretion is hardly likely to be for want of the normal stimulus to cause it, since until quite the end the majority of patients seem to have good appetites, and vomiting, when it occurs, is not generally accompanied by nausea; hence it may be inferred that the gastric secretion is as good nearly as in health.

The possibility that the composition of the pancreatic juice may be altered considerably in composition as well as in quantity is not contrary to the latest findings of physiology, and seems rather to be favoured by the occurrence of an oily layer on the fæces which has been occasionally noticed.

Moreover, since primary growths in the pancreas very rarely attain a large size, the occurrence of wasting cannot be attributed to the presence of the tumour simply, nor is there any evidence to shew that there is a continuous discharge of broken-down material comparable to that which occurs in those cases of carcinoma of the uterus, in which not only are there no secondary growths, but even the primary growth has extended very little and the uterus is scarcely, if at all, enlarged.

Symptoms due to interference with the functions of the gland result either from destruction of the gland cells or the ducts, or from the islands of Langerhans being involved. In the former cases the symptoms would be those resulting from loss of pancreatic secretion, and indistinguishable from those of obstruction of the pancreatic duct. In the latter group of cases the only symptom recognized is glycosuria. In primary malignant disease of the pancreas glycosuria is rare.

Mirallié (*loc. cit.*), who seems to be the first to have observed that glycosuria is noted almost only in cases of long duration, also points out very clearly the remarkable fact that towards the end of the case the glycosuria disappears.

This fact appears to point strongly in favour of the argument that carcinoma is a sequel to a condition of which glycosuria is one symptom, for, if otherwise, it would seem inexplicable; whereas it is easy to conceive that a pancreas may be so diseased as to be incompetent to cope with the large amount of carbohydrate absorbed, but when its ordinary digestive functions have been largely if not entirely put out of court by progressive increase of carcinoma, that the islands of Langerhans (which are generally believed to have the control of carbohydrate metabolism in some way) would regain proportionately their control over the now much reduced intake of assimilated carbohydrate.

That jaundice also may become less in the last few weeks of life points also to lessened secretion of digestive juices. The condition of the islands of Langerhans noted in the part of this paper dealing with microscopical appearances lends further support to this view.

Pressure on nerves or ganglia gives rise to symptoms, of which pain is the most frequent. It is situated in the epigastrium, and, although in few cases it may be very acute, it is usually of a dull aching character, with acute paroxysms at varying intervals. Rigidity of the upper part of the right rectus seems distinctly to point to some deep seated irritation of the ninth or tenth dorsal segment. Vomiting which occurs without nausea may also be due to irritation through pressure on nerves.

Finally, symptoms resulting from secondary growths or degeneration of primary growths are, most often, swelling of the legs from glands in the portal fissure pressing on the vena cava, enlargement of the liver from the presence of secondary growths, and possibly diarrhœa, owing to ulceration of the bowel and the discharge into it of irritating material.

General peritonitis, the result of perforation of an ulcer of the stomach or duodenum, which had become fixed to the pancreas, has been recorded in a few cases.

From this brief account of some of the principal symptoms, it is evident that none of them can be considered as peculiar to primary cancer of the pancreas, except the deep brown jaundice; and this is probably due, not to the fact that the disease is carcinoma, so much as to the uncommon event of both bile and pancreatic juice being absorbed into the lymphatic system.

One symptom, however, has not been mentioned, which has been regarded by Trousseau and others as of great importance in the diagnosis of carcinoma, though not necessarily of the pancreas. It is phlegmasia dolens, which in these cases is not an uncommon event to take place.

Many other symptoms have been recorded from time to time, and are generally secondary to one or other of the pathological occurrences here noted.

The temperature in cases of carcinoma of the pancreas is of exactly the same type as in almost all cases of carcinoma. Except for accidents, such as septic infection, the temperature is normal or subnormal. A slight rise a week or two before death is not uncommon, and may indicate a terminal infection, but on the day or two preceding death the temperature generally sinks well below normal.

The age of onset varies within wide limits, from about 25 to 70. Instances of its occurrence at 14 and at 86 are recorded.

Pathology, Morbid Anatomy, and Morbid Histology.

The appearances at post-mortem examination are usually those of a rather obscure or ill-defined enlargement at the head of the pancreas, in many cases with the stomach fixed to it.

Ulceration into the duodenum is not often met with. The size of the tumour is usually about two inches in diameter, and the tumour is generally a hard one. By extension the growth in some cases involves the posterior wall of the stomach; it seldom seems to involve other organs, even the duodenum.

Secondary growths, as one might expect, infect the liver more often than any other organ. The mesenteric lymph-glands are the next most usual locality, then the peritoneum, then the lungs. Sometimes a secondary growth is met with in another part of the pancreas, and rarely the organ seems to be entirely converted into new growth, and its shape thereby much altered.

Histologically considered the pancreas may be regarded as consisting of three sets of structures: the ducts and alveoli, the islands of Langerhans, and the connective tissue framework. Each of these appear to have special relationships to primary carcinoma.

The type of carcinoma most frequently seen is the spheroidal-celled, with a large amount of fibrous tissue. This type most probably takes origin in the alveoli of the gland, and is comparable to spheroidal-celled carcinoma of the breast.

Next in frequency comes columnar-celled carcinoma, which doubtless commences from the epithelium of the ducts (Plate IV. a). Apart from the fact that there is no other columnar epithelium from which it can arise, it is to be noted that the cells lining the spaces are rather short, in fact are sometimes broader than they are tall, and that these spaces are tubular and have large lumina, just as the ducts should, and so contrast with the growths, which have scarcely any lumen and which arise in tubular glands.

Note should here be made that carcinoma of the duodenum anatomically resembles carcinoma of the head of the pancreas to a considerable extent, and microscopically is a columnar-celled growth; but by dissection it can be proved to have no connection with the pancreatic ducts, and sections of it shew that although a columnar-celled growth, it is of a very different character, its cells being very long and seem to be growing out from a central slender stalk, in which is a vessel (Plate II., Fig. 7), or it forms tubules with very small lumen and very long cells.

A third form of primary pancreatic carcinoma is that in which there is a great amount of dense fibrous stroma with large definite spaces in it, the spaces themselves being partly filled by collections of spheriodal cells, which in form and arrangement at first sight look like islands of Langerhans, but are readily observed to consist of a larger type of cell, while they do not shew a convoluted column of cells as the islands do (Plate IV. b). It seems probable that this type of growth is really only a variety of the type first mentioned.

A fourth type of carcinoma met with in the pancreas is of exceptional interest, as there is good reason to believe that it arises in the islands of Langerhans (Plate II., Fig. 8, and Plate V. a). It consists of cells most irregular in shape and size, but on the whole much larger than in the other varieties of carcinoma, and possessed of nuclei, which in some instances are enormous. The bodies of the cells stain deeply with eosin. The cells are arranged not in groups as in the other varieties, but in large masses, and seem fitted one to another just as do the large cells with large nuclei in squamous-celled carcinoma, which this growth further resembles in its deficiency of fibrous stroma. In several places the cells seem to be disintegrating, and look not unlike the mass so often seen in the middle of a large area of squamous-celled carcinoma. There is, however, nothing to be seen like a cell-nest or like keratinization. This is only what is to be expected; the pancreas is hypoblastic in origin, keratinization is peculiar to epiblast.

Turning for the moment from the actual question of the site of origin of these growths, a curious occurrence may be noticed:—

In primary carcinoma of the pancreas, examination microscopically of the edge of the growth reveals the fact that for some time after all the rest of the parenchyma is destroyed the islands of Langerhans remain apparently intact, though they may be completely surrounded by carcinoma (Plate IV. a and b).

This event is to be compared with what is seen sometimes in other conditions, *e.g.*, in congenital syphilis as recorded by Opie (33), or in chronic pancreatitis, in which the islands appear to escape injury for a long time, though surrounded by dense fibrous tissue (Plate III., Fig. 9); but even these striking instances seem less remarkable than the resistance to the new growth as mentioned above.

All the cases of primary carcinoma of the pancreas examined for this paper exhibit this condition with one exception, that one being the case in which the disease is believed to have originated in the islands themselves, and in which therefore it would hardly be expected (Plate V. a). As this case is of great interest an account of the symptoms and of the post-mortem examination are appended to this paper. Further reference will be made to this interesting circumstance in connection with secondary growths in the pancreas.

There remains to be considered the connective tissue framework, in which run the nerves, blood-vessels, and lymphatics. The connective tissue of the new growth is derived from this source as a matter of course, and it is possible that its quantity relative to the cells of the new growth may sometimes be indicative of the reaction of the connective tissue of the pancreas to the exciting cause of the carcinoma before ever the carcinoma commenced. Thus in most cases the connective tissue is plentiful, and would point to a long continued irritation. In the case where the disease is believed to have commenced in the islands of Langerhans there is little or no visible stroma, so that this would point to absence of irritation of the stroma of the gland if this idea be correct.

Before the advancing edge of primary carcinoma of the pancreas the gland parenchyma is seen to degenerate, and an increase of fibrous tissue appears (Plate IV.a), which is directly continuous with the stroma of the new growth. This increase is chiefly conspicuous between the lobules, which are well defined thereby.

Cases of Primary Carcinoma of the Pancreas.

M.	43	Spheroidal-celled; secondary growths in liver, right kidney.*
M.	54	Squamous-celled; secondary growths in liver.
M.	65	Spheroidal-celled; secondary growths in liver, pleura.
F.	27	Spheroidal-celled; secondary growths in liver, lungs.
F.	27	Columnar-celled; secondary growths in liver, spleen, ovary, lymphatic glands.
F.	40	Columnar-celled. No secondary growths.

The number of cases is too small to make any deductions from in the way of statistics, yet it may be noted that all the female patients were considerably younger than the males, the difference between the averages of the ages amounting to as much as 23 years. Judging from cases recorded in literature this is purely an accident and devoid of significance.

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* Not verified by microscopical examination.

Secondary Malignant Disease of the Pancreas.

Amongst the cases from which materials have been taken for this paper, that is, the cases in The Middlesex Hospital during the last three years, the occurrence of secondary growths in the pancreas has been more frequent than of primary carcinoma, and the opinion that generally they are less frequent may have been gained through instances having escaped notice, whereas primary growths can hardly do so. The colour of the organ, the frequency of sclerosis in it, and the usual small size of the growths, all tend to hinder their being recognized.

The following cases have been verified microscopically:—

Sex.	Age.	Primary Growth.	Other Secondary Growths.
M.	73	Rectum	Liver, pleura, heart, lymphatic glands.
M.	54	Stomach	Liver, lymphatic glands.
F.	70	L. Breast	Liver, right suprarenal capsule.
F.	67	L. Breast	Liver, right suprarenal capsule, vertebra, lymphatic glands.
F.	67	Cervix of Uterus	Both suprarenal capsules, both ovaries, lymphatic glands.
F.	64	Stomach	Liver, lymphatic glands.
F.	60	L. Breast	Wall of duodenum, lymphatic glands.
F.	55	L. Breast	Liver, lungs, bones of skull, lymphatic glands, right suprarenal capsule.

Some other cases may be mentioned here in connection with secondary growths, although not carcinoma.

Sex.	Age.	Primary Growth.	Other Secondary Growths.
M.	73	Rectum. Large round-celled sarcoma.	Liver, lung, heart.
M.	65	Rectum and Anus. Mixed-celled sarcoma (Melanosis).	Liver, kidney, stomach, gall bladder, brain, pelvic, aortic, and inguinal lymph glands.

Sex.	Age.	Primary Growth.	Other Secondary Growths.
M.	31	Right kidney. Round-celled sarcoma.	Left kidney, gall bladder.
F.	59	Left bronchus. Mixed-celled sarcoma.	Liver, wall of thorax, lymph gland.
F.	56	Perirectal. Small round-celled sarcoma.	Liver, lung, pelvic, inguinal, and mesenteric lymph glands (adrenals).
F.	56	Lymphadenoma.	

The anatomical position of the pancreas, lying as it does across the main afferent lymphatic channels to the thoracic duct, and the fact that the organ itself is richly supplied with wide lymph channels, may conduce to the occurrence of secondary growths in it.

The two extremities of the organ seem to share the favour of being infected almost equally, and the middle part is less often infected, and in the cases quoted above has only been infected when the head and tail also have been.

In the case infected from disease of the cervix of uterus the organ was quite mis-shapen, and crammed full of small white deposits.

Microscopically the carcinomata may be squamous-, spheroidal-, or columnar-celled according to the site of origin of the primary growth.

The appearances presented in sections of these deposits seem to be of two kinds.

Generally an interlobular, and in places an interacinar fibrosis, seems to precede the new growth, while the part next actual growing edge in the majority of instances shews a slight, small, round-celled infiltration; here, too, the cells of the carcinoma will not shew their characteristic type if, for instance, the growth were columnar-celled; but only a little deeper the type is clearly distinguishable. In this respect the secondary growths resemble those in other organs.

The less frequently seen, but much more remarkable looking growths, are those which attack the parenchyma of the gland point blank, so to say. The best, but not the only, example of this was the infection by the squamous-celled carcinoma from the cervix of the uterus.

In the method of attack which has just been described, the parenchyma cells can be seen to be diminished considerably in size before disappearing, but in the present case the cells shew little or no change. The great invading cells of the neoplasm lie next to the cells of the gland, and no line of degeneration, of fibrous tissue, or of small-celled infiltration intervenes between the malignant growth and the apparently healthy parenchyma. Yet in other parts of the section columns of these cells can be seen distending, but not rupturing the lymph paths. It would appear as if the lymph stream or the gland cells formed either of them very attractive residences, while endothelium were an efficient barrier.

By far the most striking difference, however, between primary carcinoma and secondary carcinoma, when viewed microscopically, is this: That while in the former class of cases (with one exception, mentioned above) the islands of Langerhans enjoy a prolonged temporary immunity from destruction, in the latter such an immunity no longer occurs—in fact rather the reverse takes place—and the islands seem to be among the first to disappear of any of the structures composing the organ.

This remarkable fact may depend upon either a physiological cause, or it may depend on the anatomical position, and this latter seems to be more probable. In another section of this paper reasons are adduced to shew that the empty-looking spaces of the islands are neither arterial nor venous nor gland lumina, but are really lymph spaces, and this would then give a reason which may well be considered adequate to explain the susceptibility of the islands to secondary infection.

A glance at the enumeration of secondary growths in cases of primary carcinoma of the pancreas will shew moreover that the lymphatic glands at least are but seldom infected, so that possibly the lymph paths are not the chief means of passage from the organ of the elements going to form secondary growths, and therefore would not be likely to be so within the organ. Mirallié agrees with this when he says that the tumour in its growth has little tendency to invade other organs. The duodenum usually escapes; its mucous membrane covers the growth projecting into the lumen of the bowel. The neighbouring glands, and especially those in the hilum of the liver, are infected, but to a very limited extent. The growth spreads almost always by contiguity and is scarcely ever disseminated.

Secondary growths of sarcoma or of lymphadenoma seem in the cases in this series to shew no peculiar method of growth beyond a general infiltration by their cells of the inter-lobular and interacinar spaces, by which the pancreatic gland cells are swamped and then caused to disappear. In one case the growth spread chiefly along the inter-lobular spaces, and in another sarcoma case the growth seemed to avoid them and the blood-vessels appeared engorged, but in both the attack on the parenchyma was of the same nature.

Finally, mention must be made of direct invasion of the gland by carcinoma. Three instances of this were met with. All three occurred in males, all three were microscopically columnar-celled growths, and might almost be said to have originated in the same part, viz., the duodenum :—

Sex.	Age.	Primary Growth.	Secondary Growths.
M.	37	Common bile duct.	Liver.
M.	60	Duodenum.	Liver, lymphatic glands.
M.		Duodenum.	Liver, lymphatic glands.

The microscopical appearances in the duodenal cases are those of columnar-celled carcinoma, of which the cells have very long bodies in which is a basally situated nucleus (Fig. 10). These cells are arranged either in tubules having a small lumen, or in a sprouting fashion from a slender stalk or along a surface, but the recticulum is generally delicate.

In the common bile duct case the growth much more nearly resembles columnar-celled carcinoma of the pancreas, in fact might well be taken for it. On the other hand the direct invasion resembles rather infection by sarcoma than either primary or secondary carcinoma; it seems to go on unaffected by any apparent path of least resistance.

Returning to consider the naked eye appearances, it is observed that these duodenal growths are considerably larger than any secondary growths which have been met with, and have grown into the pancreas quite as much, if not to a greater extent than along the duodenum. The presence of cells sprung from duodenum mucosa may be the means of furnishing the kinase, which would set up autodigestion of the cells furnishing the precursor substance of the trypsin, and so lead to greater destruction of gland, creating a path of least resistance for its spread more effective than any anatomical one.

The condition of the Pancreas in Malignant Disease where the Organ is not directly involved.

In malignant disease, in which the pancreas is not involved either by primary or secondary infection or by direct extension from adjacent organs, no *constant* pathological change is met with, but over 40 per cent. of the glands examined microscopically exhibit some pathological condition. This change may affect either the interstitial connective tissue or the gland parenchyma, or both, the commonest change met with in the interstitial tissue being an increase in its amount.

A "normal" gland, as already pointed out, has a minimum amount of interstitial areolar tissue; but in more than 20 per cent. of all cases of malignant disease examined, the connective tissue of the pancreas was altered in character and increased in amount.

As regards the change in the character of the connective tissue, that commonly met with is a more or less marked degree of fibrosis. Occasionally, however, the gland may be infiltrated with fat. Local areas of fat necroses may be found, or young actively growing small round cells may be met with either in local foci or diffusely scattered throughout the gland, but hæmorrhage is of very rare occurrence.

The changes seen in the gland parenchyma consist either in degenerative change in the cells of the secreting acini themselves (characterized by disappearance of the zones, irregularity of shape, unevenness of staining, etc.), or in the appearance in the lobules of certain small circular spaces lined by more or less cubical cells (PLATE III., Fig. 10, and PLATE V. B), (the exact nature of those structures is unknown, but will be discussed in detail subsequently,) and in the appearance of oval or circular spaces, also of doubtful origin, in the gland parenchyma (PLATE V. B), as well as in the appearance of large spaces or channels filled with blood. An apparently marked increase in the number of ductules is also not an uncommon occurrence.

(*a*) *The change in the interstitial tissue.*

In a normal pancreas the connective tissue binding the lobules and acini together is of the loosest possible description, and is barely visible on microscopic examination of an ordinary specimen. In many cases of carcinoma this connective tissue is markedly increased in amount, so that strands of more or less dense consistency may be seen permeating the gland in various directions. In some cases this connective tissue appears to consist of actively growing small round cells, while in others (probably those of longer duration) fully formed fibrous tissue may be made out. This increase in the connective tissue may be general and involve practically the whole of the gland, which is tough, firm, and pale on macroscopic examination, while microscopically the fibrous tissue appears to extend inwards from the capsule, in the connective tissue of which it probably originates, as the oldest and densest tissue appears to be towards the periphery, the centre being in some cases practically free. This variety is most common in carcinoma of the stomach, and is in all probability produced by direct extension from that organ. A similar condition is also occasionally met with in gastric ulcer, when the ulcer involves the posterior wall of the viscus which is adherent to the pancreas (Plate III., Fig. 9).

In other cases the fibrosis instead of being general and diffuse is local and patchy. This connective tissue may pass round the lobules, peri-lobular fibrosis. In the early stages of this condition the lobules are widely separated and the gland appears enlarged, a condition closely comparable with hypertrophic cirrhosis of the liver. In more advanced cases of this variety the connective tissue contracts, so that the acini of the different lobules are isolated from one another and appear distorted and irregular in outline, the gland becoming small, pale, and hard, and bearing a close resemblance to the condition met with in the small granular kidney.

In more advanced cases the new connective tissue may pass into the lobules and more or less surround the acini (intra-lobular fibrosis), while occasionally it may even be seen penetrating the secreting cells which, by its subsequent contraction, it utterly destroys. In the most advanced cases practically only fibrous tissue can be made out, with, only very occasionally, a few isolated acini in the midst of the fibrous tissue, the glandular substance proper being completely destroyed.

This connective tissue apparently originates in the adventitia of the blood-vessels, the external coat of which in many cases appears to be considerably thicker than normal, and can be seen sending out septa which ramify in all directions.

The above statement also appears to be true of the ducts, which are frequently noticed to be surrounded by a thick layer of fibro-areolar tissue. Thus, increase in the thickness of the external coat appears to be not unfrequently associated with an increase in the number of the smaller ducts themselves, many of which may be seen cut across in one field, a state of affairs certainly not observed in a normal gland. The condition appears to be most frequent in the tail of the organ. As regards the cause of this increased connective tissue round the blood-vessels, the most plausible suggestion seems to be the circulation in the vessels of some irritant, and a similar explanation is probably also true of those forms which start round the ducts; and Flexner has shewn that irritating substances injected into the pancreatic duct produce pancreatitis, an interstitial form of which is probably the precursor of the fibrosis described above.

If some substance of an irritating nature in the pancreatic duct is the cause of the increased tissue formation, one would expect to find the first change in the internal and not in the external coat, since the internal would be the first to come in contact with the irritating substance. In some cases this appears to be true, for several of the specimens shew microscopically proliferation of the epithelium lining the ducts, and not unfrequently macroscopically the duct may be seen plugged with semi-solid material, which microscopically is found to consist of masses of columnar-epithelial cells (Plate III., Fig. 11), evidently the result of proliferation of the cells lining the pancreatic duct, while as already mentioned the duct is after death occasionally filled with bile. Again, in carcinoma of the pylorus or duodenum the pancreatic duct is sometimes occluded, so that the flow of pancreatic juice into the duodenum is either impeded or altogether prevented, and accumulates in the pancreatic duct. This accumulated secretion probably acts as an irritant, and leads to the fibroses above described. Ligature of the pancreatic duct is well known to produce such an effect (41). On the other hand, if the cause is to be found in the blood, the external coat might easily be first affected, as it is nourished by a special set of vessels of its own and not by osmosis from the blood it contains. Certainly no change has been noted in the internal coat of the vessels.

Fibrosis of the pancreas is a well-known pathological condition, and has been described in connection with heart disease (Hale White) (12), syphilis (Leo) (21), renal disease, and alcoholism, when it is usually associated with fibrosis of other organs; but in making the above observation these factors have (as far as possible) been eliminated, and inferences have only been drawn from those cases in which, as far as one could ascertain, none of the above-mentioned factors existed; and it seems tolerably certain that a more or less marked degree of fibrosis may occur in the pancreas, not only in primary or secondary malignant disease of that organ, but also when the organ in question is not directly infected or involved. In addition to fibrosis, fat cells may occasionally be seen between the gland cells, but the condition is rare, while hæmorrhagic patches seem still more uncommon.

(*b*) *The changes in the gland parenchyma.*

The gland parenchyma may appear normal or it may exhibit various degenerative changes. Not unfrequently the cells stain irregularly and diffusely; no zones are to be differentiated; while if the organ exhibits a marked fibrosis, either locally or generally, the gland parenchyma may be more or less completely destroyed, in some cases being quite unrecognizable, the cells being irregular, distorted, and utterly destroyed. Frequently amongst the acini one can see small circular structures about the size of an ordinary alveolus, composed of a delicate basement membrane, lined by a single layer of cubical or somewhat flattened cells (Plate III., Fig. 10, and Plate V. b). In the lumina of these one may find either an apparently structureless substance which appears to have been coagulated by various hardening reagents, and stains well with eosin and other similar stains, or cells of various forms. Those which stain well with eosin are usually irregularly circular in outline and contain one or more nuclei, the nucleus of the mononuclear form often being more or less crescentic or horseshoe shaped. These structures, whatever their exact nature may be, do not appear to be usually present in a normal gland.*

The following suggestions are made as regards their origin and nature. They may be:—

1. Modified ducts.
2. Modified alveoli.
3. Embryonic remains.

On superficial examination these structures appear to have a general resemblance to the smaller ducts, for which they might easily be mistaken; but against this view are the facts that in many cases they are far more numerous than the ducts, and the cells lining them are larger than those lining the ducts. On the other hand, their contents have a general resemblance to, and in some cases are identical with material that can be obtained from the ducts, and which has been described above.

A much more probable view, however, seems to be that they are modified and probably worn out alveoli, in which the granular inner zone is absent, a state of affairs shewn to exist by Bernard in old cases of paralytic secretion.

Their number and position also suggest that they are alveoli rather than ducts, while their cellular contents, at any rate, have a close resemblance to the centro-acinar cells. Against their being modified alveoli, however, are the facts that no structures are apparently ever found intermediate between them and ordinary alveoli, and no granules, zones, longitudinal striations, or para-nuclei can be made out.

These structures do not appear to exist in the "normal" senile pancreas to any marked extent, and hence are not retrogressing structures occurring in advancing age as one might suppose.

Finally, as regards their being embryonic or immature alveoli, this is supported by the fact that a developing pancreas consists of tubules which in many respects resemble these structures; they are, however, slightly larger.

Similar structures have also been observed in the pancreas of a young child, a fact which appears to suggest that they are associated with the beginning rather than the end of life.

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* It is not suggested that these structures are in any way characteristic of malignant disease, as they are occasionally met with in other diseases, *e.g.*, diphtheria, tuberculosis, etc., and have been observed in the pancreas of the frog and rabbit (fœtal). But their presence is regarded as interesting and suggestive that the pancreas in malignant disease may not be as perfectly developed or functionally active as usual.

Whatever the exact nature of these structures may be, it seems fairly certain that they are frequently present in malignant disease, which need not necessarily affect the pancreas directly; and their presence rather seems to suggest that this organ is functionally not as active as usual, a statement which receives confirmation from the fact that glycerine extract of pancreas from cases of malignant disease often exhibit very little digestive activity. Associated with these structures, or occasionally occurring independently of them, more or less clear circular or oval spaces may be met with in the parenchyma (Plate V. b.). These spaces are larger than the ducts or acini, and appear to be quite destitute of cellular or other contents.

The most obvious explanation of them appears to be that they are due to local groups of acini having fallen out of their connective tissue framework; but this can hardly be correct, as they do not appear as a normal pancreas when mounted and stained in the same way. They do not occur in the pancreas of the lower animals, and they are found in specimens in the preparation of which the greatest possible amount of care has been taken. The fœtal pancreas appears to consist microscopically of tubules of cells lying in spaces precisely similar to those mentioned above, hence it is possible that these spaces really represent areas of pancreas in which the tubules have either not developed at all or have atrophied.

Should these observations and conclusions prove correct they are particularly interesting, as they seem to shew that the pancreas in malignant disease, even when the organ itself is not directly affected, is often in a somewhat rudimentary or degenerated condition, a fact which may in part, at any rate, account for the emaciation met with in malignant disease.

No changes have been observed in the island of Langerhans except in extreme cases of fibrosis, when they are occasionally found somewhat distorted by pressure or more or less isolated and surrounded.

The following are the principal conclusions arrived at in this Paper as the result of the investigations made for it. They refer only to carcinoma:—

Primary carcinoma may arise from each of the three epithelial elements of the pancreas: the gland cells, the ducts, or the islands of Langerhans.

Secondary infection of the pancreas by carcinoma is probably not less common than primary disease of the gland.

The pancreas is not the only organ secondarily infected when growths occur in it.

The relation of the islands of Langerhans to the new growth is different in the case of primary growths from what it is in secondary growths, except in the case of carcinoma arising in the islands of Langerhans.

The duration of the clinical history of symptoms of primary malignant disease of the pancreas is short, being seldom much over six months.

In many cases the carcinoma has been preceded by other morbid conditions affecting the pancreas.

In cases of cancer where the pancreas is not infected at all there is no microscopical appearance characteristic of malignant disease.

Almost all the symptoms are attributable to pressure effects, and none are due to the combined fact of the presence of carcinoma and its presence in the pancreas.

In preparing this Paper we have been very deeply indebted to Mr. Foulerton for the trouble he has taken in revising it, and also for a great amount of very valuable advice on many important points in connection with the work for it, and its compilation.

We would also like to express our thanks to Dr. Trevethick of Cheltenham, to whom we are indebted for the specimen from which Fig. 9 was drawn, and to Mr. S. Slade, who prepared the specimen from which Fig. 4 was made; and finally we wish to take this opportunity of thanking the many others who have given us help in various ways.

Appended are:—

1. A short account of the case in which carcinoma is believed to have arisen primarily from the cells of an island of Langerhans.
2. Tables of recorded cases of primary carcinoma of the pancreas.
3. A list of authors to whom reference has been made in compiling this Paper.

DESCRIPTION OF PLATES I., II., III., IV., AND V.

PLATE I.

Fig. 1.—Posterior view of the Pancreas with the ducts exposed. (From a dissection.)

PLATE II.

Fig. 2.—Duct of Wirsung and its radicles at the tail end of the Pancreas. (From a dissection.)

Fig. 3.—Cells of alveolus and part of an Island of Langerhans; $\frac{1}{12}$-inch objective, No. 4 eye-piece.

Fig. 7.—Primary carcinoma of the Duodenum; $\frac{1}{6}$-inch objective, No. 4 eye-piece.

Fig. 8.—Cells of primary carcinoma and adjacent gland parenchyma; $\frac{1}{6}$-inch objective, No. 4 eye-piece. (From the same section as Plate V. a. The asterisk over Plate V. a. marks the position of the cells in this figure.)

PLATE III.

Fig. 5.—Human pancreas injected through the arteries, shewing peri-insular vessels; $\frac{1}{6}$-inch objective, No. 4 eye-piece.

Fig. 4.—Pancreas of guinea-pig injected through the arteries, shewing the vessels in an Island of Langerhans; $\frac{2}{3}$-inch objective, No. 4 eye-piece.

Fig. 11.—Columnar cells from the semi-solid duct contents obtained by expression at necropsy; $\frac{1}{12}$-inch objective, No. 4 eye-piece.

Fig. 6.—Island of Langerhans shewing blood in its spaces; $\frac{2}{3}$-inch objective, No. 4 eye-piece. (From a case of carcinoma of the stomach with unusual vascular and blood changes.)

Fig. 9.—Island of Langerhans completely embedded in fibrous tissue, which was continuous with the fibrosis about an ulcer of the stomach; $\frac{2}{3}$-inch objective, No. 4 eye-piece.

Fig. 10.—Cells of pancreas shewing alteration in an alveolus. The pancreas was not the seat of any new growth; $\frac{1}{12}$-inch objective, No. 4 eye-piece. (From the same case as Plate V. b.)

PLATE IV.

(*a*) Primary columnar-celled carcinoma of the pancreas; $\frac{2}{3}$-inch objective, No. 4 eye-piece.

(*b*) Primary spheroidal-celled carcinoma of the pancreas; $\frac{2}{3}$-inch objective, No. 4 eye-piece.

PLATE V.

(*a*) Primary carcinoma of the pancreas, probably arising from the cells of the Islands of Langerhans; $\frac{2}{3}$-inch objective, No. 4 eye-piece.

(*b*) Pancreas not the seat of any new growth, shewing changes in the parenchyma; $\frac{2}{3}$-inch objective, No. 4 eye-piece. (From a case of carcinoma of the cervix of the uterus; æt. 63.)

Plate I.

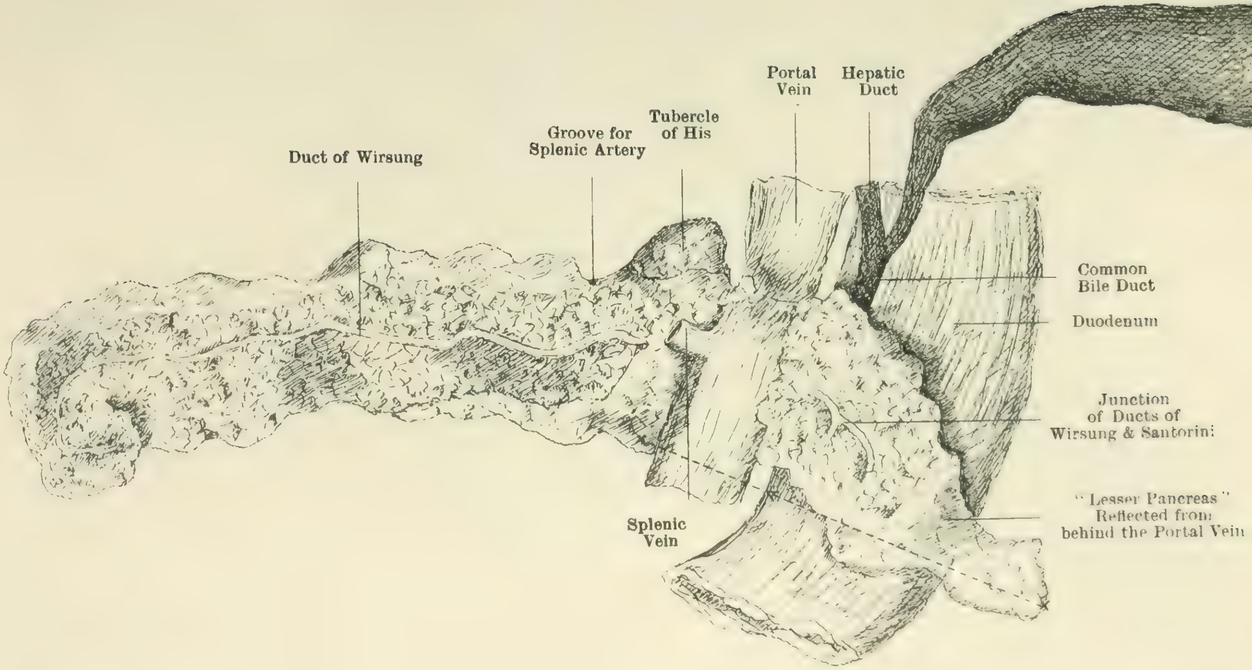
Duct of Wirsung
Groove for Splenic Artery
Tubercle of His
Portal Vein
Hepatic Duct
Common Bile Duct
Duodenum
Junction of Ducts of Wirsung & Santorini
"Lesser Pancreas" Reflected from behind the Portal Vein
Splenic Vein

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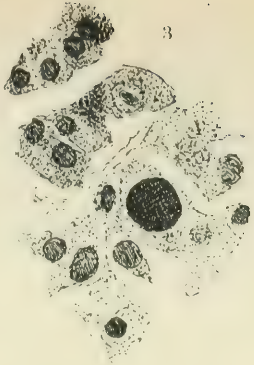
Plate II.

3



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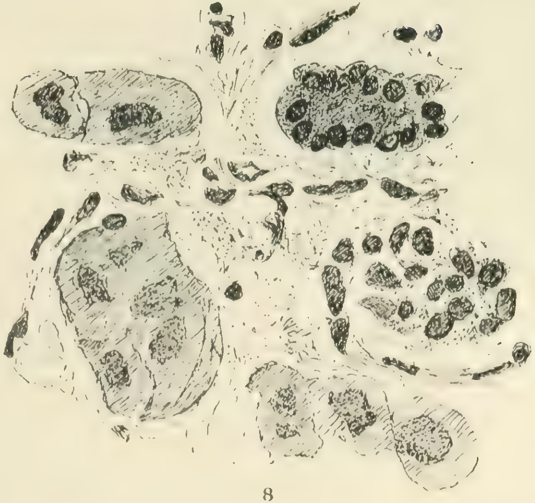

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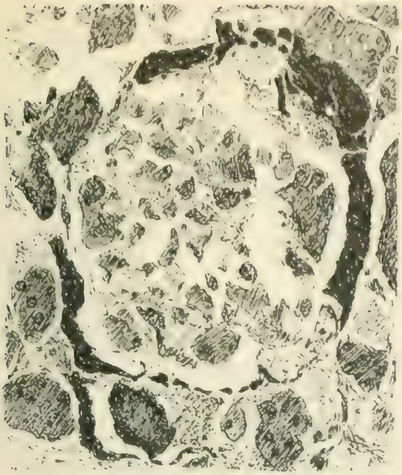
Plate III.

5



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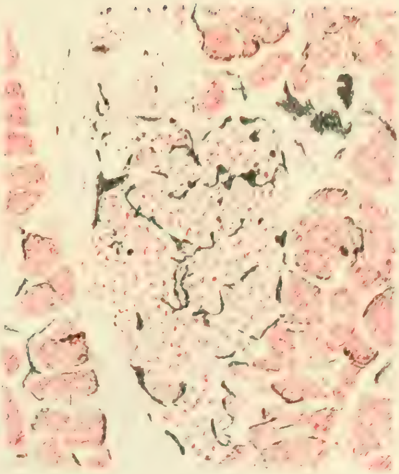

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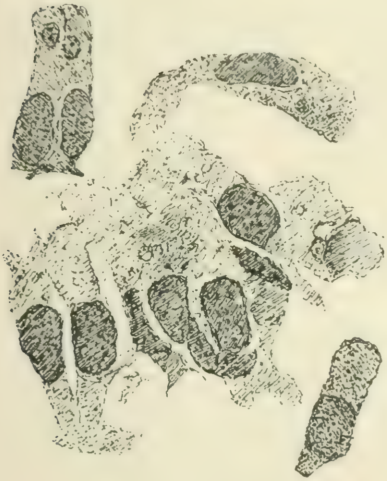

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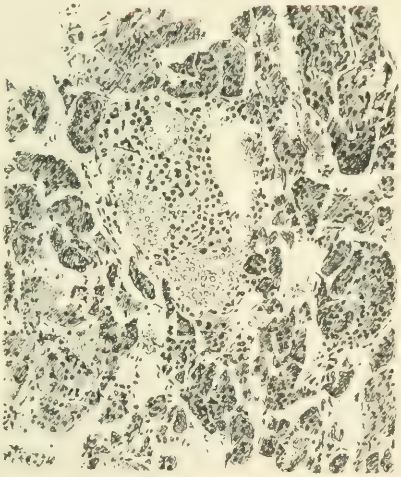

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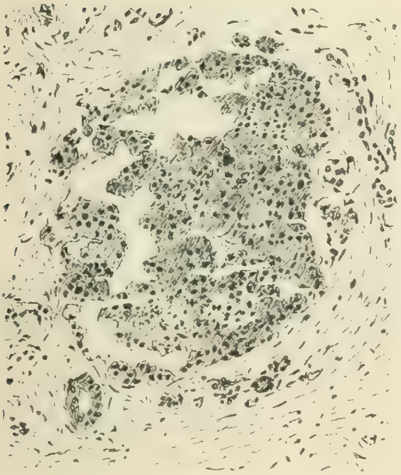

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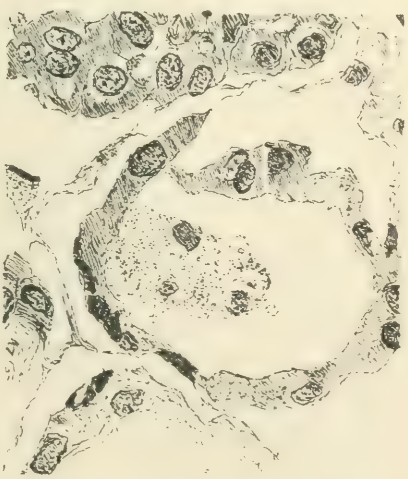

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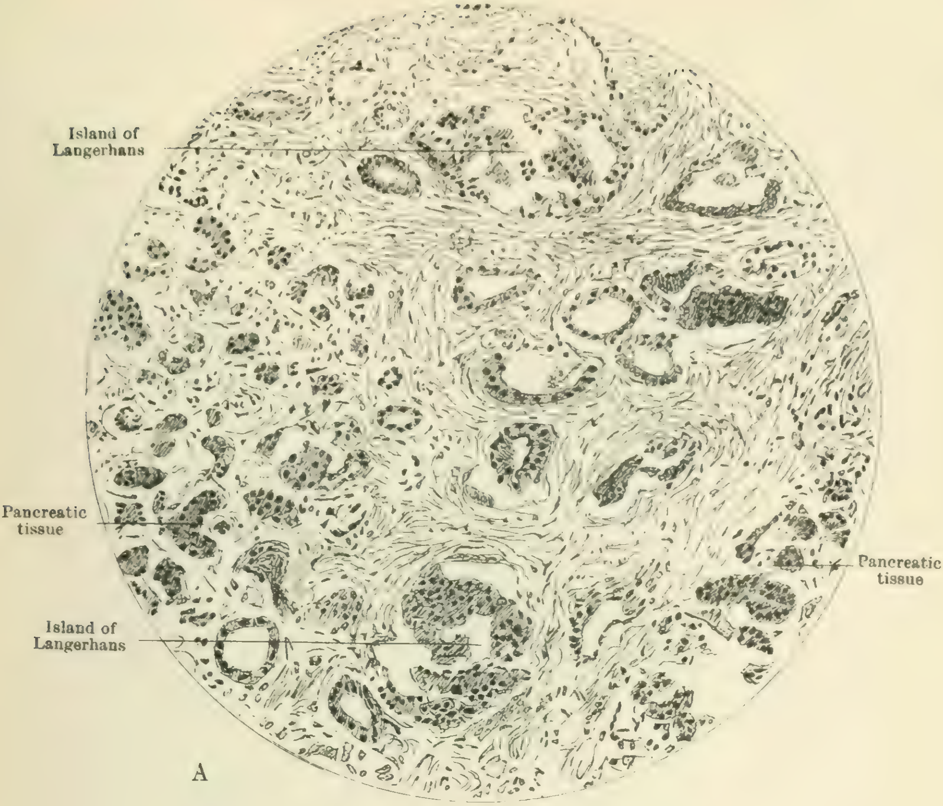
Plate IV.



A

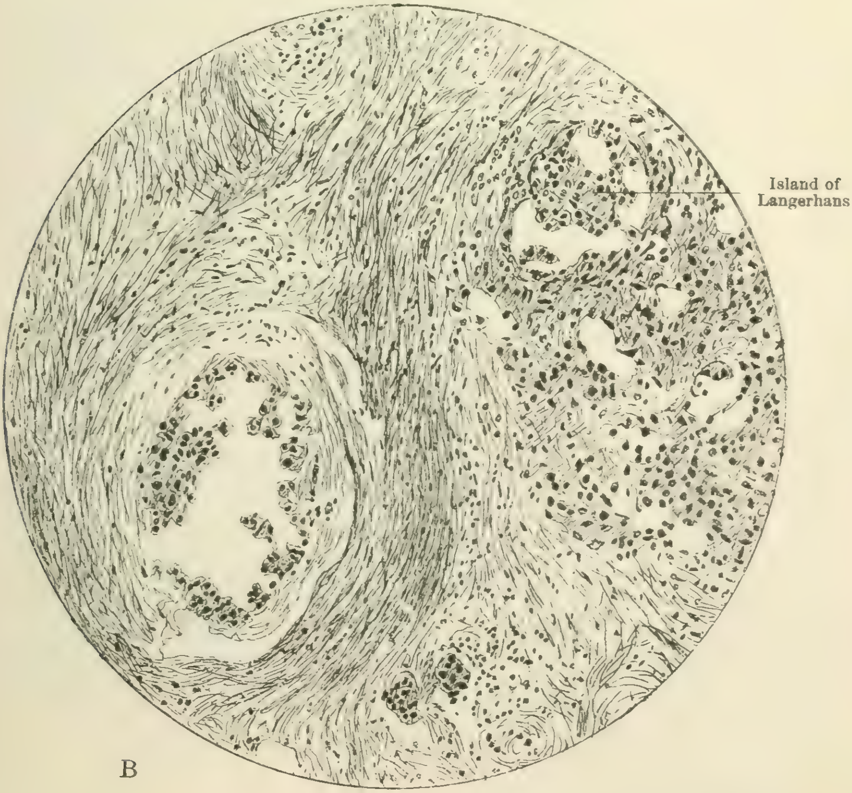


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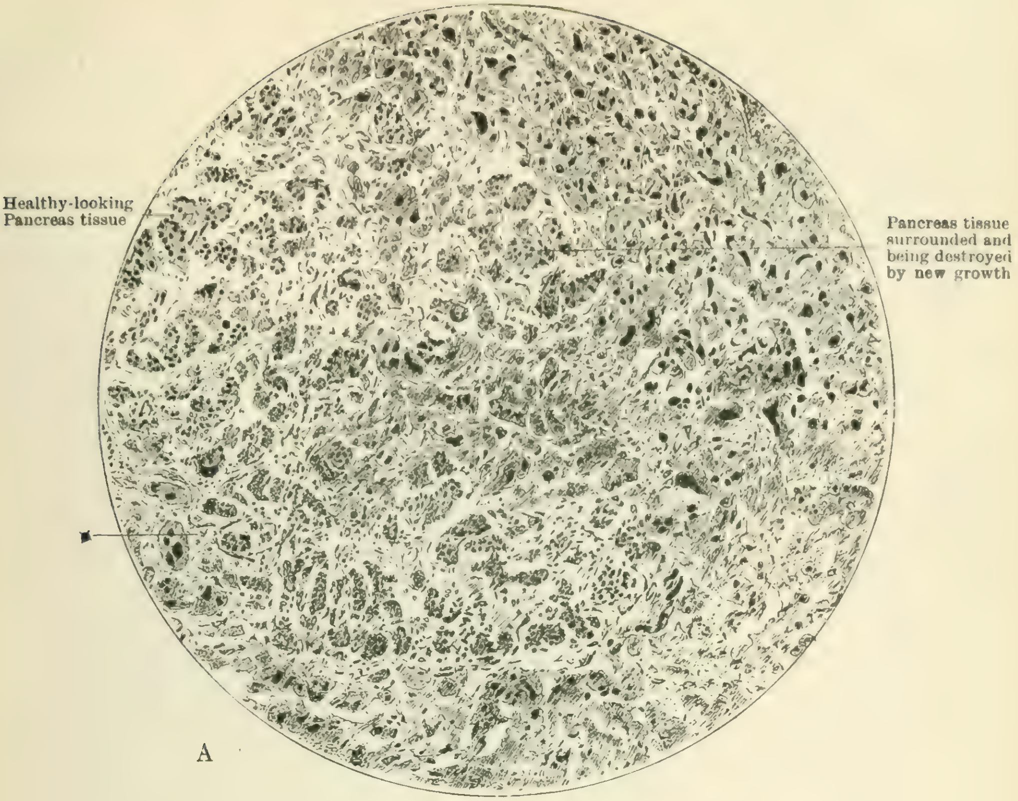
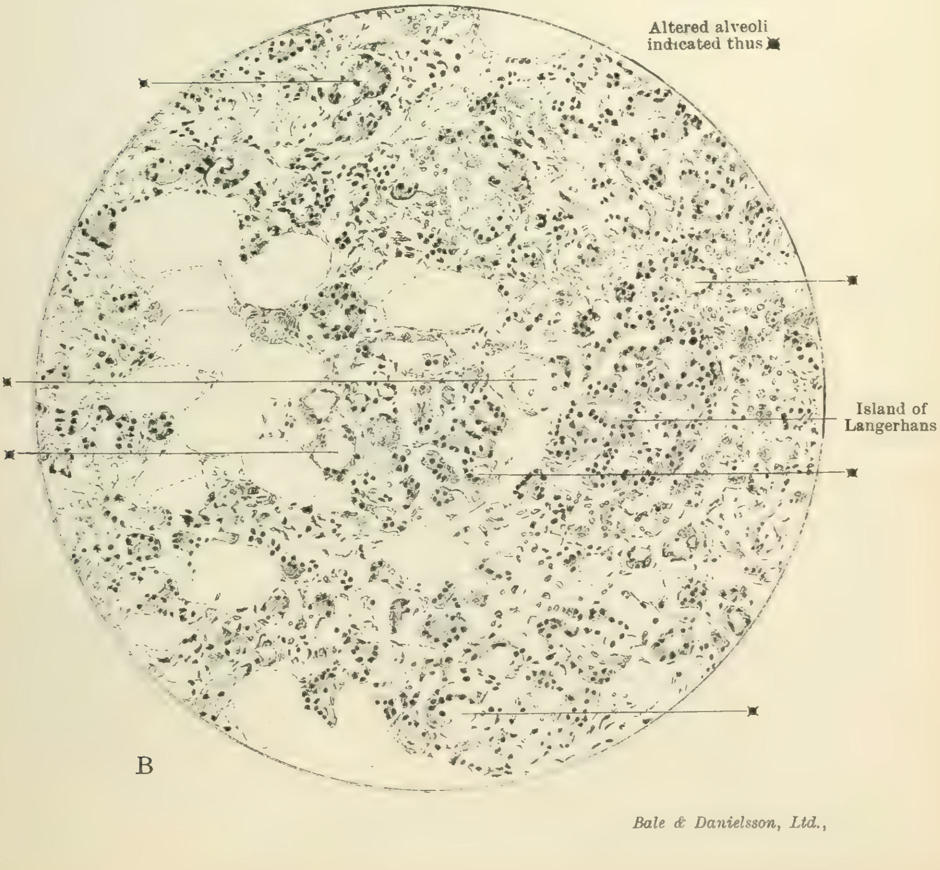
Plate V.


Healthy-looking Pancreas tissue
Pancreas tissue surrounded and being destroyed by new growth
A



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APPENDIX I.

CASE OF PRIMARY CARCINOMA OF PANCREAS.

J. B., 54, carpet-planner. Admitted 26 June 1900; died 16 Aug. 1900; post-mortem 17 Aug. 1900. Markedly jaundiced, somewhat emaciated.

Pancreas.—In the head of the pancreas was a hard nodule of new growth extending towards transverse fissure of liver. The growth surrounded the common bile duct, which was entirely blocked. The growth had not invaded pylorus or stomach.

Liver was congested, and bile ducts dilated and engorged Gall bladder was firmly adherent to liver substance and its walls thickened. Scattered through the liver were numerous *secondary deposits* of new growth, varying in size from pea to filbert-nut.

Stomach congested; intestines "normal"; kidneys granular; spleen soft and pulpy; testicles yellowish; heart rather soft; lungs emphysematous, œdema at bases; right lower lobe collapsed; right pleura adherent; all organs bile-stained; some excess of fluid in left pleura and pericardium; 40 ounces in peritoneum and adhesions.

Microscopically: Carcinoma, cells of large irregular shape with large nuclei.

CLINICAL NOTES.

Previous illnesses: Small-pox and shingles when a young man. Had been a heavy drinker before this. Five years ago Bright's disease and dropsy; albuminuria ascites. A year ago was in hospital for ascites and bronchitis; ascites all went away, chronic cough persisted; never had jaundice.

Present illness: Two months before admission, pain in abdomen and back; indigestion, wind, and pain after food; coughing and retching in the morning; has been becoming thinner and weaker for four or five weeks. (About 14 days ago noticed hard lump in right hypochondriac region, the seat of severe pain.) Tongue clean, appetite poor, bowels rather irregular; liver felt enlarged. "At a spot in a line with the tip of the ninth right costal cartilage, and about the level of the umbilicus and 4 inches from it, is a definite hard nodule about the size of a walnut. This is extremely tender on palpation." Pulse 80, high tension. Urine 1018, acid; no albumen, no sugar. During stay in hospital pain continued all the time; weakness increased, and so did constipation. At first there was vomiting. About six weeks before death jaundice commenced, and soon became very deep. Urine bile-stained, acid, and usually had sp. gr. 1020, and did not contain albumin (sugar not recorded). Eighteen days before death thrombosis of ? int. saphenous v. of right leg. On seventh and fourth days before death syncopal attacks occurred. Before death he was in semi-conscious condition, and was kept under the influence of morphia. Temperature, generally about normal, fell below in last fortnight, after slight rise for a week. Pulse rate increased from 80—90 at first to 102 just before death.

APPENDIX II.

A.—CASES OF PRIMARY CARCINOMA OF THE PANCREAS IN MALES.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Microscopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(*a*) Post-mortem Examination. (*b*) Symptoms.	
1	28	Tumours size of fist in head of pancreas, lower part, and surrounding lymph glands. Soft in consistence. Rest of pancreas healthy.	In lymph glands, liver.	Glandular alveolar epithelioma.	+	+	..	Jaundice. Fæces pale. Urine bile-stained.	..	..	(*a*) Gall bladder distended. Spleen small. (*b*) Œdema of legs and ascites at end.	de Massary, M. E., "Bull. de Soc. Anat.," 1894, 849.
2	33	Pancreas in its whole length is studded with small tumours, some soft, some hard, chiefly met with in the head. Fungating masses in duodenal wall projecting into bile duct, nearly blocking it. Pancreatic duct dilated, looking like encephaloid.	.. ..	Alveolar cancer.	+	+	..	Jaundice. Fæces uncoloured. Urine bile-stained.	Vomiting. Anorexia. Some constipation. Diarrhœa towards end.	..	(*a*) Dilated bile ducts and gall bladder. Glands below liver enlarged and blackened. Numerous peritoneal adhesions near liver. Tubercles and caseous foci in lungs.	Dreyfus, M. L., "Bull. de Soc. Anat." 1876, 381.
3	33	Hard lump in pancreas, splenic end.	Large secondary mediastinal growth.	Scirrhus; 2ndly, mediastinal growth, columnar-celled (no lumen).	..	..	..	.. ..	..	Obstruction to bronchi.	(*a*) Large mediastinal growth compressing innominate veins, supr. vena cava, trachea and bronchi, and projecting into these last. Vagi implicated.	Rolleston, H. D., "Trans. Path. Soc.," xlii., 320.
4	33	The carcinomatous growth implicated the head of the pancreas only; the pancreatic duct was dilated, and contained a large calculus.	None.	..	+ Rapid.	And in back.	+	Deep jaundice. Distended gall bladder. Ash-coloured fæces.	..	..	.. .. ..	Suckling, "Lancet," 19 Jan. 1889, 127.

5	35	Pancreas firm and solid with cancerous deposit.	In liver and lumbar and other lymph glands.	..	+	+	..	Jaundice. Enlarged liver. Urine tinged with bile.	Constipation.	..	(*a*) Distended gall bladder.	Willcocks, F., Johnson, "Med. Times," 31 May 1879, 590.
6	36	In abdomen a central mass proved to be the pancreas, totally altered in shape, and scirrhus throughout.	None.	..	+	..	..	Deep jaundice. Distended gall bladder. Fæces uncoloured. Urine bile-stained.	..	..	.. .. ..	Steele, Charles, M.D., "Lancet," 15 July 1893, 132.
7	38	Glandular carcinoma forming a tumour 9 inches by 2½ by 2, entirely enclosed within the capsule, and not interfering with the common duct.	In aortic lymph glands, liver, lungs, suprarenals.	..	..	+ Intense.	..	.. ..	..	..	.. .. ..	Pitt, G. N., "Trans. Path. Soc., xlv., 91.
8	38	Large mass of firm growth in pancreas, the tail of which is also involved in growth.	In left adrenal, mediastinal, lymph glands.	Alveolar carcinoma.	..	..	..	.. ..	Dysphagia due to swelling in neck.	Pneumonia.	(*b*) Albuminuria. Œdema of chest.	Midx. Hosp. M.R., 200, 1895.
9	42	Tumour of head of pancreas on section white and friable, causing bulging of duodenal mucous membrance. Growth involves lymphatic vessels near by and surrounds solar plexus.	In lymph glands, near pancreas, right adrenal (probably).	Epithelioma.	+	..	..	.. ..	Vomiting.	..	(*a*) Cavity and caseous foci at right apex of lung. Stomach muscle wall thickened. No biliary obstruction.	Pilliet, A., "Bull. de Soc. Anat.," 1888, 728.
10	43	Hard growth in tail of pancreas.	In liver and parietal peritoneum.	..	+	+	..	.. ..	Constipation.	..	(*a*) 122 ozs. of fluid in peritoneal cavity. (*b*) Tumour felt on right side of umbilicus. Rigidity of right rectus abdominis. Ascites.	Hale White, W., "Lancet," 26 Dec. 1896, 1805.

		POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
No.	Age.	Macroscopical appearances of the Pancreas.	Secondary Growths.	Microscopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(*a*) Post-mortem Examination. (*b*) Symptoms.	
11	45	Pancreas large, hard, and composed chiefly of various sized masses of scirrhus.	None.	Scirrhus.	..	+	..	Slight jaundice.	Anorexia. Vomiting, becoming worse and finally hæmatemesis.	Hæmatemesis.	(*a*) Fat on anterior abdominal wall $\frac{3}{4}$ inch thick, much fat in omentum. (*b*) Urine pale, abundant, sp. gr. 1002, does not contain albumen. Swelling of right leg.	Trower, Arthur, "Brit. Med. Journ.," 22 Sept. 1888, 665.
12	48	Scirrhous tumour of the head of the pancreas involving posterior wall of stomach.	.. ..	..	+	..	+ Disappeared under dietetic treatment.	.. ..	Dyspepsia and constipation.	Sudden death. Perforation of anterior wall of stomach.	(*b*) Marked weakness. Swelling of feet.	Collier, J. T., "Brit. Med. Journ.," 4 Oct. 1890, 790.
13	49	Growth in head and tail of pancreas. Duct dilated.	.. ..	Scirrhus carcinoma.	+	+	..	Deep jaundice.	Occasional vomiting.	Coma.	(*b*) Irritation of skin. Slight ascites.	Hale White, W., "Clin. Journ.," xvi., 97.
14	49	Pancreas found almost entirely invaded by scirrhus.	In glands in neighbourhood of pancreas, and in liver, especially left lobe.	..	..	In last month of life.	..	.. ..	Vomiting and symptoms of obstruction of bowel and hæmorrhage during last month of life.	Exhaustion.	(*b*) Somewhat movable tumour felt in epigastrium.	Dyson, "Lancet," 5 Feb. 1887, 273.

15	50	Head of pancreas occupied by a grey medullary tumour softened in places. Duct distended, sacculated bulgings.	.. ..	..	+	..	+ With lessened jaundice in last days no sugar.	Jaundice. Urine bile-stained. Distended gall bladder.	Blood in fæces. Later fæces colourless, no blood. Finally diarrhœa, tenesmus, and loss of appetite.	..	(*a*) Dilate bile ducts. (*b*) Slow pulse. Hard nodular tumour deep in abdomen.	Frerichs, "Maladies du Foie," Eng. Trans., 1860, New Syd. Soc., vol. i., 145.
16	50	Head of pancreas a globular mass 4 inches in diameter, breaking down in the centre; body of pancreas seems healthy.	In lymph glands around pancreas, and in liver, which weighed 18 ozs.	..	+	+	..	Jaundice. Enlarged liver. Trace of bile in urine.	Anorexia. Constipation.	Collapse from exhaustion.	(*b*) Ascites, weakness, thirst.	Dingley, E. A., Roberts, F. T., "Brit. Med. Journ.," 7 April 1883, 664.
17	50	Head of pancreas enlarged, hard, nodular, leathery to the knife, of grey colour on section. Pyloric end of stomach involved.	Numerous in body of pancreas.	..	+	Very severe at times.	..	Slight jaundice. Enlarged liver. Towards end of life uncoloured fæces. Urine bile-stained and copious.	Early symptoms of lead colic (the patient was a painter). Diarrhœa towards end of illness.	Asthenia.	(*b*) Albuminuria.	Rankin, Guthrie, "Brit. Med. Journ.," 11 May 1895, 1033.
18	50	Head of pancreas hard and fibrous. Parts beyond converted into a cavernous structure, clearly as a result of obstruction to its duct. The whole organ was larger than natural, but there was no growth except the one in the head.	.. ..	Scirrhus cancer.	+	..	..	Deep jaundice. Dilated gall bladder. Enlarged liver. Colourless fæces. Urine dark.	..	Exhaustion. Loss of blood after operation.	(*b*) Swelling of feet.	Robson, A. W. Mayo, "Trans. Clin. Soc.," xxiii., 6.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Micro-scopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(*a*) Post-mortem Examination. (*b*) Symptoms.	
19	51	Head of pancreas the seat of a neoplasm.	In cœliac lymph glands, liver and right adrenal, right pleura and lung.	Alveolar cancer.	+	..	..	.. ..	..	Sudden Hæmoptysis from rupture of vessel in degenerated area of growth.	(*a*) Gangrenous cavity below growth in right lung with vessels running across it. (*b*) Weakness extreme. Fœtid expectoration. Bronchopneumonia.	Auvray, "Bull de Soc. Anat.," 1893, 453.
20	52	Pancreas round, slightly lobulated, a mass of scirrhus.	In liver.	..	..	..	..	Intense jaundice.	..	..	(*a*) Gall bladder distended.	Steele, Charles, "Lancet," 15 July 1893, 132.
21	54	Tumour occupying head of pancreas, corresponding to ulcerated surface in duodenum just below bile duct. Scirrhous variety. Intestine surrounded by growth 2¼ inches thick.	Liver contained a few small nodules.	..	+	Dull pain.	..	Jaundice.	Vomiting in last 2 weeks of life frequent.	..	(*a*) Gall bladder enlarged. Ducts pervious. Emphysema. Heart dilated and hypertrophied. (*b*) Attributed to strain. Vomiting of blood 5 weeks after injury.	Dixon, Geo. A., "New York Med. Journ.," 1883, vol. 39, 333.
22	54	Hard growth in middle of pancreas ulcerating into stomach.	In kidneys and in stomach, near primary growth.	..	..	..	..	.. ..	Hæmatemesis. Diarrhœa.	Loss of blood by hæmatemesis.	(*b*) Rigidity of right rectus abdominis.	Hale White, W., "Lancet," 26 Dec. 1896, 1805.
23	54	Hard nodule of new growth in head of pancreas surrounding common bile duct.	In liver.	Carcinoma.	+	..	..	Jaundice marked.	..	..	(*a*) 40 ozs. of fluid in peritoneal cavity.	Midx. Hosp. M.R., 1900.

24	54	Tumour in pancreas the size of a tennis-ball. Stomach adherent and ulcerated.	None.	Encephaloid cancer.	+	Relieved by vomiting.	..	.. ..	Vomiting. During last 10 days vomitus was black.	..	.. .. ..	Wethered, F. J., "Lancet," 8 Feb. 1890, 299.
25	54	Head of pancreas occupied by a new growth partially softened.	In bronchial, mesenteric, and retroperitoneal lymph glands, liver, pleuræ, and lung.	..	..	..	..	Slight jaundice. Enlarged liver.	Diarrhœa.	..	(*b*) Delirium.	Midx. Hosp. M.R., 824, 1891.
26	54	Middle portion of pancreas seat of soft whitish-pink new growth, which extends into the posterior wall of the stomach and there presents as an ulcerated surface.	In retroperitoneal lymph glands, liver.	..	+	+	..	.. ..	Constipation. Vomiting. Nausea.	..	(*b*) Weakness. Hard mass felt in epigastrium.	Midx. Hosp. M.R., 439, 1896.
27	55	Cancer of pancreas involving liver.	In mesentery and in lower lobe of right lung.	..	..	+	..	Jaundice.	..	..	(*a*) Biliary calculi 14.	Midx. Hosp., 1895, S. R., 891.
28	55	Pancreas completely cancerous; head a hard mass.	In right kidney, which is adherent to cancerous mass.	Scirrhus carcinoma.	+	..	..	Jaundice. Urine bile-stained.	Diarrhœa. Loss of appetite. Vomiting. Fæces contain blood.	Cachexia.	(*a*) Bile ducts dilated (gall bladder atrophied). (*b*) Frequent micturition. Dry skin.	Ramos and Cochez, "Rev. de Méd.," 1887, 774.
29	55	Head of pancreas enlarged, occupied by a mass of scirrhus obliterating bile duct and projecting into duodenum. Pancreatic duct occluded and dilated.	.. ..	..	+	+	..	Jaundice (brownish yellow). Urine bile-stained.	Appetite poor. Blood in fæces at end of case.	..	(*a*) Distended gall bladder and bile ducts. (*b*) Ascites. Slow pulse.	Frerichs, "Maladies du Foie," Eng. Trans., 1860, New Syd. Soc., vol. i., 137.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Micro-scopical appearances.	Wast-ing.	Abdo-minal pain.	Glyco-suria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(*a*) Post-mortem Examination. (*b*) Symptoms.	
30	55	Pancreas is extremely hard, shews pale new growth near its head and at its upper border.	In liver around portal canals, fundus of gall bladder, diaphragm, right lung, kidneys, mesentery.	..	..	+	..	Jaundice. Enlarged liver. Urine bile-stained.	..	..	(*a*) Liver enlarged. Calculi in gall bladder. (*b*) Death 12 days after exploratory operation. Rigidity of abdominal walls, right side. Enlarged inguinal glands.	Midx. Hosp. S.R., 891, 1895, M.R., 690.
31	56	Tumour size of fœtal head in head of pancreas; moveable. On section lardaceous crepitates under the knife.	.. ..	..	+	..	..	Jaundice. Urine deeply coloured.	Vomiting (early in the disease).	..	(*a*) Bile ducts dilated.	Boucaud, "Gaz. Hebdoma," 1865, 52.
32	56	Large hard cancerous growth springing from body of pancreas close to its head.	In liver, great omentum, mesentery.	..	+	+	..	Jaundice deep. Fæces pale. Urine bile-stained.	Constipation. Vomiting. Loss of appetite and abdominal distension at end of life.	..	(*b*) Weakness. Liver felt roughened.	Midx. Hosp. M.R., 346, 1888.
33	56	Pancreas replaced by a coarse tough fibrous meshwork, the spaces in which were of various sizes, and filled with gritty calculous material, pus, and what appeared to be remnants of pancreatic tissue.	None.	Typical spheroidal-celled carcinoma.	+	+	..	.. ..	Occasional vomiting.	Syncope.	(*b*) Slight albuminuria.	Weber, F. Parkes, "Lancet," 20 April 1901, 1141.

34	57	Scirrhus cancer of tail of pancreas invading spleen, left kidney, and colon, causing obstruction.	.. ..	Scirrhus cancer.	..	..	..	.. ..	Symptoms of intestinal obstruction.	Unknown. Death occurred suddenly, while the patient was apparently recovering.	(*b*) Admitted for intestinal obstruction 11 days before death. Operation for relief.	Beck, Marcus, "Lancet," 16 July 1887, 113.
35	59	Below the stomach there was an irregular mass taking the place of the pancreas, and extending downwards about 4 inches, leaving only a portion of the pancreas in an apparently normal condition.	In several lymph glands near the pancreas.	..	+	..	..	.. ..	Occasional vomiting at termination of case.	Exhaustion.	(*b*) Tumour detected 1 month before death. Phlegmasia, alba dolens in both legs, and finally hemiplegia.	Cane, Leonard, "Brit. Med. Journ.," 24 Feb. 1883, 354.
36	60	Pancreas seat of hard cartilaginous scirrhus growth, ulcerating at the head and obstructing by pressure the common bile duct. Second part of duodenum adherent to and perforated by growth.	.. ..	..	+	..	..	Jaundice. Fæces clay-coloured. Urine bile-stained.	Vomiting occasionally (at end of illness).	..	(*a*) Right lower lobe of lung congested. Punctiform hæmorrhages.	"Midx. Hosp. Rep.," 1884.
37	60	Tumour size of egg in head of pancreas.	In lymph glands, portal mesenteric, and pelvic.	..	+	+	..	Jaundice. Fæces uncoloured. Urine bile-stained.	Diarrhœa.	..	(*a*) Gall bladder distended. Ascites.	Dequy and Piatot, "Bull. de Soc. Anat.," 1898, 215.
38	60	Head of pancreas hardened, not much enlarged.	.. ..	Carcinoma.	+	+	+ Controlled by diet.	Deep jaundice (brown). Dilated gall bladder. Enlarged liver. Clay-coloured fæces. Urine deeply bile-stained.	Diarrhœa sometimes.	..	.. .. ..	Kesteven, W. H., "Trans. Path. Soc.," xl., 140.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Microscopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(a) Post-mortem Examination. (b) Symptoms.	
39	62	Whole of pancreas was infiltrated with hard new growth, forming a large tumour.	In liver, right kidney.	Spheroidal-celled carcinoma.	+	+	..	Deep jaundice coming on in last 14 days of life.	Constipation.	..	(a) Thrombosis of portal vein. (b) Œdema of feet.	Midx. Hosp. M.R. 1900.
40	62	Head of pancreas the seat of cancerous deposit, white on section.	In retro-peritoneal glands.	..	+	+	..	.. ..	..	..	(a) Mucous coat of stomach beginning to ulcerate.	Smith, Hammond, "Med. Times," 8 March 1873, 249.
41	62	Large hard growth in head of pancreas compressing bile ducts and pylorus.	In liver.	..	+	+	..	Jaundice. Fæces clay coloured.	Vomiting. Loss of appetite. Constipation.	..	(a) Stomach dilated. Gall bladder distended. (b) Tumour felt in neck, right side. Abdominal muscles rigid.	Midx. Hosp. M.R., 820, 1899.
42	63	Pancreas very hard, with whitish nodules.	.. ..	Cancer.	+	..	..	Jaundice. Dilated gall bladder.	No appetite. Diarrhœa during last weeks of life.	..	(a) Gall bladder distended.	Moutard, Martin R., "Bull. de Soc. Anat.," 1887, 342.
43	64	Head of pancreas the size of an egg, invaded by a tumour, itself surrounded by several degenerated glands. Duct of Wirsung whole length dilated.	In liver.	..	+	+ In epigastrium. Worse after food.	..	Jaundice. Dilated gall bladder. Liver slightly enlarged. Fæces colourless.	Diarrhœa at onset, later constipation, later vomiting.	..	(a) Bile ducts and gall bladder dilated. (b) Swelling of feet.	Bard and Pic, "Rev. de Med.," 1888, 269.

44	65	Hard growth infiltrated head of pancreas, and pressed upon pylorus of stomach and biliary ducts.	In liver, omentum, right adrenal.	..	+	..	..	.. ..	Constipation. Indigestion. Vomiting.	..	(*a*) Stomach distended. (*b*) Ascites.	Midx. Hosp. S.R., 508, 1899.
45	65	Tumour from head of pancreas 2½ inches diameter.	.. ..	Nature uncertain. Colloid.	..	..	..	Jaundice. Clay-coloured fæces.	Constipation.	..	(*b*) Chills and fever at first.	Bruen, "Boston Med. and Surg. Journ.," 1883, 110.
46	65	Pancreas infiltrated by a firm new growth.	In liver, pleura.	Spheroidal-celled carcinoma.	+	+	..	.. ..	Loss of appetite. Constipation. Vomiting after exploratory operation.	..	(*b*) Thirst. Albuminuria. Wasting of muscles of hand.	Midx. Hosp. S.R., 1703, 1901.
47	66	Pancreas and glands about it are converted into a mass of scirrhus of considerable size. Tail of pancreas is chiefly involved, the head much less.	In liver.	..	+	..	..	Intense jaundice.	Loss of appetite.	..	(*a*) Numerous hæmorrhagic erosions in stomach. Infarcts in left kidney and spleen. Splenic artery surrounded by growth. (*b*) Œdema of legs.	Gille, Brechemein, "Bull. de Soc. Anat.," 1879, 417.
48	66	Small double tumour in head of pancreas. Tail of pancreas firm and healthy.	In liver.	..	+	..	..	Jaundice.	Loss of appetite. Constipation.	..	(*a*) Dilated gall bladder and bileducts. Splenic artery dilated and calcified. Lumbar glands hypertrophied. (*b*) Œdema of left leg and hands.	Ranglaret, "Bull. de Soc. Anat.," 1893, 471.
49	66	Pancreas completely degenerated (disappearance of pancreactic duct), obstructing bile duct.	In liver.	Scirrhus carcinoma.	+	..	..	Jaundice. Fæces colourless. Urine bile-stained. Liver enlarged.	Diarrhœa. Vomiting.	Cachexia.	(*a*) Distended gall bladder and bile ducts. (*b*) Œdema of legs. Petechiæ dry skin.	Ramos and Cochez, "Rev. de Méd.," 1887, 770.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Microscopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(a) Post-mortem Examination. (b) Symptoms.	
50	67	Whole pancreas enlarged and infiltrated by a hard nodular growth, the head of the gland being conspicuously the seat of morbid change.	In duodenum, a few inches below the pylorus.	..	+	+	..	Some jaundice. Enlarged liver. Fæces occasionally colourless. Urine bile-stained.	Vomiting sometimes. Constipation.	..	(b) Hard tumour in epigastrium. Pulsatile, not expansile.	Rankin, Guthrie, "Brit. Med. Journ.," 11 May 1895, 1033.
51	68	Primary carcinoma of pancreas blocking bile duct.	Small in one kidney, one gland, and ? in spleen. None in liver.	Spheroidal-celled carcinoma.	+	..	..	Deep jaundice. Distended gall bladder. Enlarged liver. Biliary colic relieved by cholecystotomy and removal of 3 gall stones.	..	..	(b) Tumour felt, a day or two before death, in front of upper lumbar vertebræ.	Herringham, W. P., Keetley, C. B., "Lancet," 16 Mar. 1889, 533.
52	68	Head of pancreas entirely occupied by a hard white mass.	In liver.	..	..	..	..	.. ..	..	(Death sudden.)	(a) Hemispherical tumour in infra spinous fossa of right scapula (microscopically like growths in liver and pancreas).	Isch-Wall, "Bull. de Soc. Anat.," 1889, 330.
53	70	Primary cancer of the whole of the pancreas compressing bile duct. Cystic cavity of tail of pancreas full of calcareous material.	In liver.	..	..	..	..	Jaundice.	..	..	(a) Obstruction of bile duct by tumour.	Bacaloglu and Trémolières, "Bull. de Soc. Anat.," 1898, 700.
54	70	Large tumour occupying head of pancreas.	.. ..	..	+	..	..	.. ..	Indigestion. Vomiting.	..	(a) Liver cirrhotic. (b) Slight œdema of feet.	Moore, N., "St. Bart.'s Hosp. Rep.," 17, 209.

55	71	Pancreas not enlarged. Duct of Wirsung dilated.	.. ..	..	+ Cachexia.	..	..	Jaundice. Fæces colourless or grey. Urine bile-stained.	..	..	(*a*) Bile duct compressed. Liver shews rounded prominences. Fibrous areas in liver. Gall bladder distended. (*b*) Albuminuria. Slight urethral hæmorrhages. Petechiæ of skin.	Bard and Pic, "Rev. de Med.," 1888, 276.
56	71	Tumour nearly size of fist in head of pancreas. Adherent to duodenum on section, yellowish white and very hard. Duodenum invaded and ulcerated.	In liver.	..	..	+	..	Jaundice (brown). Distended gall bladder. Enlarged liver.	..	Exhaustion.	(*a*) Gall bladder and bile ducts dilated.	Bard and Pic, "Rev. de Med.," 1888, 263.
57	72	Head of pancreas much enlarged, grey, and firm. Growth does not invade surrounding parts.	.. ..	..	+	+	..	Gall bladder distended.	Constipation. Flatus. Indigestion.	Death sudden.	(*a*) Bile ducts dilated. Liver enlarged. Parietal thrombi in superior mesenteric artery and vein. (*b*) Tumour felt in mid line of abdomen. Stomach distended.	Midx. Hosp. M.R., 1357, 1896.
58	73	Pancreas infiltrated with scirrhus cancer, which had perforated the duodenum and formed a hard raised nodule compressing the common bile duct.	.. ..	..	..	+	..	Jaundice. Urine bile-stained. Enlarged liver.	Loss of appetite. Vomiting.	..	(*a*) Bile ducts dilated. (*b*) Dysphagia. Thirst.	Midx. Hosp. M.R., 1103, 1881.
59	75	Head of pancreas size of a citron, intimately adherent to second portion of duodenum. Duct of Wirsung dilated contains a reddish semifluid substance.	In liver.	Encephaloid cancer.	+	+ Acute.	..	Jaundice. Fæces whitish. Urine deeply coloured.	Anorexia. Nausea. Vomiting early and at end of illness. Constipation.	..	(*a*) Slight ascites. Bile duct dilated and also gall bladder. Portal vein slightly compressed. (*b*) Slow pulse. Œdema of right hand.	Labbé, E., "Bull. de Soc. Anat.," 1865, 267.
60	86	Ill-defined hard nodule in head of pancreas size of a small hen's egg. Scirrhus.	.. ..	..	+	..	..	Intermittent jaundice. Distended gall bladder.	..	..	(*a*) Bile duct surrounded by growth, but nowhere constricted.	Griffin, Vincent, "Bull. de Soc. Anat.," 1896, 524.

APPENDIX II.—*continued.*

B.—CASES OF PRIMARY CARCINOMA OF THE PANCREAS IN FEMALES.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Microscopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(*a*) Post-mortem Examination. (*b*) Symptoms.	
1	14	Pancreas cancerous, the part of the gland where its duct unites with the bile duct being converted into a hard mass apparently obliterating the bile duct.	.. ..	..	..	..	..	.. ..	..	..	(*a*) Enormous dilatation of bile ducts. (*b*) Fluctuating abdominal tumour in epigastrium and right hypochondrium. Two pints of bile evacuated by puncture.	Todd, quoted by Battersby, "Rev. Gén. de Med.," 1884, 5, p. 499.
2	27	Head and body the seat of a growth involving stomach wall.	In lymph glands, liver, spleen, right kidney, peritoneal surface of intestines, omentum, ovary.	Columnar-celled carcinoma.	+	+	..	.. ..	Constipation.	..	(*a*) Recent laparotomy wound. Numerous adhesions and turbid fluid in peritoneum.	Midx. Hosp. Cancer Reg., 166, 1900.
3	27	Large hard pale growth occupying head of pancreas, adherent to and infiltrating the duodenum walls.	In liver, lungs.	Spheroidal-celled carcinoma.	+	+	..	Jaundice. Urine bile-stained.	Vomiting and hæmatemesis.	..	(*a*) Perforation of ulcer of stomach (? antemortem). Collection of thick pus in connection with right parotid gland. (*b*) Tumour felt in abdomen below liver. Exploratory operation.	Midx. Hosp. Cancer Reg., 232, 1900.

4	28	Pancreas enlarged, hard, full of small cysts containing whitish fluid, apparently situated on branches of the duct. Duct of Wirsung enlarged. Mass size of an egg in head of pancreas, compressing bile duct and intestine, rounded, firm, and shewing bosses.	None found.	..	+	+	..	Jaundice. Dilated gall bladder. Enlarged liver. Fæces colourless. Urine bile-stained.	Constipation.	..	(*a*) Gall bladder distended.	Bard and Pic, "Rev. de Med.," 1888, 272.
5	40	Head of pancreas enlarged and hard. Tumour also infiltrates the rest of the gland.	.. ..	Columnar-celled carcinoma.	..	At onset.	..	Jaundice deep. Distended gall bladder. Urine bile-stained.	Constipation. Persistent vomiting finally.	..	(*b*) Exploratory operation. Tumour found.	Midx. Hosp. Rep., 1901, S. R., 626.
6	44	Pancreas intensely indurated and shrunken.	.. ..	..	+	..	..	Jaundice.	..	..	(*a*) Two large calculi in bile duct. (*b*) Ascites and œdema of feet.	Moore, N., St. Bart.'s Hosp. Rep., 17, 209.
7	45	Whole pancreas infiltrated with new growth, but chiefly the tail, which was much enlarged and continuous with left kidney and adrenal, which were invaded. The pancreatic growth was yellow and undergoing degenerative changes.	In liver.	..	+	+	..	Jaundice. Distended gall bladder. Fæces clay-coloured.	Vomiting. Constipation. Hæmatemesis towards end of life.	..	(*b*) Some ascites. Œdema of legs. Nodule felt in liver.	Midx. Hosp. M.R., 1899, 1241.
8	46	Cancer of head of pancreas ulcerating into duodenum, occluding bile and pancreatic ducts. Pancreatic duct dilated.	In liver.	..	+	..	..	Deep brown jaundice. Dilated gall bladder.	..	..	(*a*) 40 ozs. bile-stained fluid in peritoneum. Gall bladder enlarged. (*b*) Tumour felt in abdomen. Rigidity of right rectus. Delirium at night. Tympanites.	Midx. Hosp. Rep., 1885.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Microscopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(*a*) Post-mortem Examination. (*b*) Symptoms.	
9	49	Growth in head of pancreas, involving entire middle portion of duodenum.	None.	..	+	..	..	Jaundice. Distended gall bladder. Fæces clay-coloured.	Constipation.	Death rather sudden during apparent convalescence from operation.	(*b*) Operation for removal of ovarian tumour. Patient was a deaf mute.	Malcom, J. D., "Lancet," 8 Sept. 1894, 573.
10	49	Firm white growth in tail of pancreas invading left kidney, which is white and firm.	In liver, pleura, muscles of back thigh, and perinæum.	Columnar-celled growth.	..	+	..	.. ..	..	..	(*a*) Thromboses in splenic and portal vein, aorta, and left common iliac artery. Infarcts in spleen and lungs.	Rolleston, H. D., "Trans. Path. Soc.," l., 171.
11	50	Primary disease in pancreas.	In liver (nearly 11 lbs. weight), in kidneys, right Fallopian tube, skin near right mamma.	..	+	+	..	.. ..	..	Occasional vomiting and at end diarrhœa.	(*b*) Enlarged liver. Swelling of feet. Tympanites.	Midx. Hosp. Rep., 1885.
12	50	Tumour size of fist in head of pancreas, involving wall of stomach at pylorus, and compressing bile duct, into which also a piece of growth projected.	In neighbouring lymph glands, liver.	..	..	..	..	Jaundice. Distended gall bladder. Urine bile-stained.	Diarrhœa.	Died comatose 2 days after exploratory operation.	(*a*) Great dilatation of bile ducts and gall bladder. Cirrhosis of liver (perimonolobular). (*b*) Ascites. Hard tumour felt near gall bladder.	Aldibert, A., "Bull. de Soc. Anat.," 1892, 35.
13	50	Tumour in pancreas the size of an egg, involving bile and cystic ducts.	In liver, enlarged lymph glands.	..	+	+	..	Jaundice. Fæces colourless. Urine bile-stained. Distended gall bladder.	..	..	(*a*) Bile found in duodenum. (*b*) Hard tumour felt besides gall bladder.	Monod, B., "Bull. de Soc. Anat.," 1900, 136.

14	51	Pancreas much enlarged, weighed 7½ ozs., hard on section and presented all the appearances of scirrhus.	None.	Ordinary scirrhus.	+	..	..	.. ..	..	Pulmonary embolism causing sudden death.	(*b*) Phlegmasia, alba dolens.	Cane, L., "Brit. Med. Journ.," 19 Dec. 1891, p. 1309.
15	52	Hard mass of scirrhus in head of pancreas.	Mass size of a large hen's egg in right lobe of liver and some small deposits.	Spheroidal-celled carcinoma.	+	+	..	Jaundice. Bile in urine.	Occasional vomiting. Appetite good.	Coma 1 week after exploratory operation.	(*a*) Gall bladder shrunken. (*b*) Swelling found over right kidney.	Smith, J. Bisset, "Lancet," July 1893, p. 307.
16	54	Growth in middle of pancreas (head and tail ends free) involving semi-lunar ganglia and partly constricting jejunum.	.. ..	Columnar-celled carcinoma.	+	+	..	.. ..	Vomiting.	..	.. .. ..	Hale White, W., "Lancet," Oct. 1887, p. 812.
17	55	Duodenum firmly adherent to cancerous mass originating in head of pancreas and infiltrating mesentery and retroperitoneal tissue.	In mesenteric lymph glands, transverse meso-colon, and base of right lung.	..	+	+	..	.. ..	Vomiting. Constipation.	Exhaustion from uncontrollable vomiting.	(*b*) Round tumour size of an orange felt to right of umbilicus.	Midx. Hosp. Rep., 1885.
18	55	Large mass of cancer involving head of pancreas and duodenum, eroding its mucous membrane, and compressing bile ducts and portal vein.	In liver, peritoneum, and retroperitoneal lymph glands.	..	+	+	..	Jaundice deep (itching of skin). Enlarged liver. Fæces colourless. Urine bile-stained.	Vomiting.	..	(*a*) Ascites and dilated bile ducts. (*b*) Weakness and giddiness.	Midx. Hosp. M. R., 225, 1882.
19	58	Head of pancreas a mass the size of fœtal head, containing a growth the size of a large pigeon's egg. Sclerosis of the rest of the pancreas. Duct dilated.	In lungs, liver, peritoneum and pleuræ.	..	..	+	..	Jaundice. Enlarged liver. Colourless fæces. Urine bile-stained.	..	..	(*a*) Gall bladder and bile ducts dilated. (*b*) Some albuminuria and slight ascites.	Bard and Pic, "Rev. de Med.," 1888, 260.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Microscopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(*a*) Post-mortem Examination. (*b*) Symptoms.	
20	58	Head of pancreas sclerosed. Lobules indistinct or lost in places.	In liver. Small and greyish in colour.	..	+	+	..	Jaundice. Dilated gall bladder. Enlarged liver. Fæces colourless.	Vomiting, loss of appetite, hæmatemesis, diarrhœa, sometimes.	..	(*a*) Gall bladder distended. One large, 8 small calculi.	Bard and Pic, "Rev. de Med.," 1888, 274.
21	60	Pancreas enlarged. In middle of lower border was a cyst with its base surrounded by cartilaginous and scirrhus tissue involving vessels and nerves.	.. ..	..	Marked.	+	..	Jaundice. Fæces uncoloured by bile.	Loss of appetite. Pain after food. Eructation.	..	(*a*) Duodenum adherent to diseased part of pancreas and contracted. (*b*) Tumour felt in epigastrium. Salivation. Œdema of legs.	Battersby, "Rev. Gén. de Med.," 1844, 5, p. 495.
22	61	Pancreas enlarged nodular, its substance infiltrated with cancer closely adherent to stomach and duodenum. A large ulcerated cavity occupied its central part, which communicated by a rugged opening with the stomach. Here a good-sized branch of the cœliac axis opened.	.. ..	..	+	Colicky pain. Tenderness in epigastrium.	..	.. ..	Nausea.	Hæmorrhage into stomach.	.. .. ..	Cash, A. Midgley, "Brit. Med. Journ.," 21 Jan. 1888, p. 133.
23	62	Very hard tumour in head of pancreas extending round bile duct and compressing right ureter.	In liver.	Cancer with chronic inflammation, possibly due to cholelethiasis.	+	+	..	Jaundice. Dilated gall bladder. Liver slightly enlarged. Fæces colourless. Urine bile-stained.	Diarrhœa. Vomiting at end of life "coffee ground."	..	(*a*) Calculi in gall bladder. Hydronephrosis. (*b*) Albuminuria.	Bard and Pic, "Rev. de Med.," 1888, 266.

24	62	Pancreas hard and fibrous. Duct dilated, filled with nearly colourless sticky fluid. Dense small growth close to duodenum.	None.	Columnar-celled growth.	..	+	..	Jaundice. Fæces pale.	..	..	(*a*) Enlarged liver. "Fat necrosis." (*b*) Nausea.	Beadles, C. F., "Trans. Path. Soc.," l., 174.
25	63	Hard pale mass of carcinoma in head of pancreas.	Numerous in neighbouring lymph glands and liver.	..	..	..	..	.. ..	..	Pulmonary embolism.	(*a*) Thrombosis left pulmonary artery. (*b*) Phlegmasia alba dolens left.	Voelcker, A. F., "Trans. Path. Soc.," xliv., 95.
26	63	Hard large mass in head of pancreas.	In liver and walls, gall bladder, and bile duct.	Cancer.	+	+	..	Jaundice. Fæces colourless. Urine bile-stained during last days.	Loss of appetite. Diarrhœa. At end of case vomiting.	..	(*b*) Slight albuminuria. Abdominal distension. Œdema of legs, thighs, hands, and forearms at end of case.	Magaigne, "Bull. de Soc. Anat.," 1892, 43.
27	63	Mass of new growth size of Tangerine orange in head of pancreas.	In neighbouring lymph glands, liver.	Scirrhus carcinoma.	+	+	..	.. ..	Vomiting. Constipation.	Sudden death. Pulmonary embolism.	(*a*) Thrombosis left iliac vein. Infarcts in lungs. (*b*) Tumour in umbilical region.	Midx. Hosp. M.R., 1892, 1148.
28	64	On section through the new growth the head and a portion of the body of the pancreas were found to be infiltrated with it. It was hard and semi-cartilaginous in consistence.	In liver, kidneys, parietal bone, subcutaneous tissue.	Scirrhus carcinoma.	..	+	..	Jaundice. Bile in urine occasionally.	..	Asthenia.	(*b*) Epigastric tumour. Weakness, ascites, and swelling of feet.	Recorded by Halliburton, W. D., under Charlton Bastian, "Med. Times," 20 Jan. 1883, 64.
29	68	Cancer of head of pancreas.	In liver.	..	+	+ At first only.	..	Jaundice dark. Urine bile-stained. Fæces uncoloured except on last 2 days.	..	..	(*a*) Calculus in gall bladder, which was atrophied. Bile in duodenum. (*b*) Weakness.	Monod, B., "Bull. de Soc. Anat.," 1900, 137.

No.	Age.	POST-MORTEM EXAMINATION.			SYMPTOMS.						REMARKS.	
		Macroscopical appearances of the Pancreas.	Secondary Growths.	Microscopical appearances.	Wasting.	Abdominal pain.	Glycosuria.	Obstruction of Bile Duct.	Intestinal Symptoms.	Cause of Death.	(a) Post-mortem Examination. (b) Symptoms.	
30	70	Head of pancreas the seat of a firm new growth not invading surrounding parts. Duct dilated. Rest of pancreas soft and pale.	.. ..	..	+	+	..	Jaundice deep. Fæces clay-coloured. Urine dark bile-stained. Liver enlarged.	Constipation.	..	(a) Bile duct dilated. Liver enlarged. Mediastinal lymph glands enlarged and pink. Chronic interstitial nephritis. (b) Tumour in abdomen at umbilicus. Intestines distended.	Midx. Hosp. M.R., 1896, 1286.
31	71	Head of pancreas converted into a hard white scirrhus mass.	In liver.	Epithelioma arising in glandular alveoli.	..	+	..	Jaundice marked.	Diarrhœa.	..	(a) Gall bladder distended. Bile duct dilated. Sclerosis of portal canals. (b) Œdema of legs and trunk.	Méry, H., "Bull. de Soc. Anat.," 1886, 743.
32	75	Tumour of head of pancreas hard, with small nodule compressing bile duct. Numerous dilatations of small ducts forming abscesses.	.. ..	Scirrhus carcinoma.	+	..	..	Jaundice. Distended gall bladder. Fæces colourless.	..	Pneumonia of left lung.	(a) Periangiocholitis of liver. Spleen large. (b) Weakness. Pyrexia.	Leven, G., "Bull. de Soc. Anat.," 1897, 951.
33	76	Growth in head of pancreas size of a fist enveloping two-thirds of the circumference of the duodenum. Distension of duct.	In liver.	..	+	+	..	Deep jaundice. Fæces uncoloured. Distended gall bladder.	..	..	(b) Ascites of lower part of trunk and legs.	Aigre, D., "Bull. de Soc. Anat.," 1889, 253.
34	77	Pancreas irregularly lumpy and degenerated throughout. Duodenum narrowed at centre of second part.	.. ..	..	..	..	..	Intense jaundice. Distended gall bladder. Slow pulse.	Anorexia.	..	(a) Distended gall bladder. Right ventricle of heart extremely atrophied. Right auricle normal. (b) Œdema of ankles and vulva. Fæces semi-liquid, greyish, and fatty. Ecchymoses of skin.	Legendre, P. L., "Bull. de Soc. Anat.," 187.

35	77	Head of pancreas seat of scirrhus, hard and enlarged; pyloric end of stomach adherent.	In spleen, liver, and gall bladder.	Carcinoma.	..	+	..	Jaundice. Enlarged liver. Fæces uncoloured.	Anorexia. Vomiting (fat crystals found in vomitus microscopically).	..	(*a*) Thick layer of subcutaneous fat in abdominal wall.	Garnier, R., "Bull. de Soc. Anat.," 1886, 473.
36	78	Soft new growth in head of pancreas whitish in colour.	In liver.	..	..	..	..	.. ..	..	..	(*b*) Enlarged liver (no jaundice).	Legg, J. W., "Brit. Med. Journ.," 22 Jan. 1876, 113.
37	78	Head of pancreas enlarged. Pancreatic duct filled by a long soft polypoid body.	In liver, also projecting as polypi into bile ducts. Prevertebral and portal lymph glands. Pleura.	Cancer.	+	..	..	.. ..	Vomiting.	+	(*a*) Spleen small. (*b*) Ascites. Slight albuminuria.	Legg, J. W., "Trans. Path. Soc.," 1875, xxvii., 189.
38	80 *circ.*	Cancer of head of pancreas compressing pancreatic and bile ducts.	.. ..	..	+	+	..	Dilated gall bladder (no jaundice).	..	..	.. .. ..	Lloyd, Jordan, "Brit. Med. Journ.," 24 March 1888, 647.
39	82	Scirrhus degeneration of pancreas.	In liver, which is enlarged, are "encephaloid" nodules.	..	+	..	..	Jaundice (brown). Dilated gall bladder. Fæces grey.	..	..	(*a*) Bile duct and gall bladder dilated.	Barth, "Gaz. des Hôp.," 1848, 600.
40	85	Cancer of head of pancreas.	.. ..	..	..	..	..	Jaundice. Dilated gall bladder. Slight enlargement of liver.	..	..	(*b*) Hard tumour situated over the aorta.	Russell, W., "Lancet," 11 May 1895, 1189.

APPENDIX II.—*continued.*

C.—SUMMARY OF TABLE OF 100 CASES OF PRIMARY CARCINOMA OF THE PANCREAS.

Out of 100 cases, 60 were in Males, 40 in Females. Males: Age distribution—Youngest, 28 years; oldest, 86 years.

Age Period.	Cases.	Cases.
21—25	0	1
26—30	1	
31—35	4	7
36—40	3	
41—45	3	10
46—50	7	
51—55	12	20
56—60	8	
61—65	8	16
66—70	8	
71—75	5	5
76—80	0	
81—85	0	1
86—90	1	

Females: Age distribution—Youngest, 14 years; oldest, 85 years.

Age Period.	Cases.	Cases.
11—15	1	1
16—20	0	
21—25	0	3
26—30	3	
31—35	0	1
36—40	1	
41—45	2	8
46—50	6	
51—55	5	8
56—60	3	
61—65	7	9
66—70	2	
71—75	2	8
76—80	6	
81—85	2	2
86—90	0	

From these it appears that Primary Carcinoma of the Pancreas among males has a more definite period of occurrence than among females. With the latter it is not so uncommon to find it at the extremes of adult life, and no decade seems to be so much more liable to attack as is seen among males.

	Among the 60 Male cases	Among the 40 Female cases
The head of the pancreas was the seat of primary disease in	42	31
The whole gland ,, ,, ,,	13	6
The middle of the gland ,, ,, ,,	1	1
The tail ,, ,, ,,	4	2
Secondary growths occurred in the Liver in	27	22
,, ,, ,, Abdominal lymph glands	14	8
,, ,, ,, Thoracic lymph glands	3	0
,, ,, ,, Lungs	5	2
,, ,, ,, Adrenal	5	0
,, ,, ,, Kidney	5	4
Wasting was noted in	42	28
Abdominal pain was noted in	30	27
Jaundice ,, ,,	39	27
Vomiting ,, ,,	23	13
Constipation ,, ,,	17	8
Diarrhœa ,, ,,	11	6
Albuminuria ,, ,,	5	3
Glycosuria ,, ,,	4	0
Sudden death ,, ,,	5	4

In one case the jaundice was intermittent and not progressive.

In the great majority of cases the abdominal pain was at some time or other characterized by severe paroxysms.

APPENDIX III.

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SOME EMPIRICAL METHODS ADOPTED IN THE TREATMENT OF INOPERABLE CANCER, AND THEIR RESULTS.

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I do not propose, in this Paper, to describe all the measures which have been suggested and tried in the treatment of advanced cancer, but shall limit myself to giving an account of the more recent methods used in the Cancer Wards of this Hospital, and to reporting what results have been obtained by their application.

Some of these methods act locally, that is to say the remedy is applied to the affected part in the hope that the growth will be destroyed. Some are supposed to exert their influence indirectly through the blood stream; and yet others act on the individual as a whole, in the hope of so altering his metabolism that his tissues may react defensively against the neoplasm which is living on him—a parasite as it were.

The methods which have some scientific foundation will be referred to first, then the purely empirical ones, and lastly, the more general means for alleviating pain, treating symptoms and complications as they arise, and making the patients as comfortable as possible during the few weeks or months of life that are left to them.

The patients who are admitted into the Cancer Wards of this Hospital are all cases of advanced malignant disease—patients who have had the advantage of an operation and who are suffering from inoperable recurrence, and those who from the first have drifted into an inoperable condition.

I will now review more particularly these various methods, considering first the subject of Oophorectomy for the relief of patients suffering from inoperable mammary carcinoma.

Oophorectomy for Mammary and Uterine Carcinoma.

The performance of double Oophorectomy for inoperable cancer of the breast has now been sufficiently employed by various surgeons to enable them to pronounce some definite opinion upon the method and its results. Since Dr. Beatson introduced the procedure to the profession it has been extensively tried, notably by Mr. Stanley Boyd and Mr. Pearce Gould. The scientific basis upon which the method has been founded has, no doubt, appealed to surgeons generally; but owing to our ignorance regarding the causation of cancer, the question as to whether removal of the ovaries will bring about the same retrogressive changes in the new growth as are observed in the normal gland tissue under similar circumstances, can only be decided by the operative results. Sufficient cases have been observed to shew that some of these operations have resulted in benefit to the patients, both as regards the course of the local disease and the general health of the patient.

The opinion that cancer is at the commencement a local disease is, I think, generally accepted; but whether the nature of the actual cause is parasitic or embryological, and therefore an error of development, or due to acquired errors of growth occurring in later life, is still undecided.

Having seen that double oophorectomy has the power of modifying the further development of mammary cancer in certain cases, including local and distant recurrences, it would be interesting to know in what way do these ovarian influences, or rather the absence of these influences, act. Accepting the view that a cancer is altogether outside the individual—a parasite so to speak grafted upon him, living and flourishing at his expense—it is only natural to suppose that the individual has some means of protecting or defending himself from the further inroads of his enemy.

Applying this principle to mammary cancer, one comes to enquire in what way does removal of the ovaries bring about those changes which have been so often observed? Is it due to a lessening of blood supply, to an alteration in nervous control, or to a general modification of metabolism so affecting the growth that it tends to some form of degeneration? Fatty degeneration is observed in other pathological processes brought about by any one of the above means.

We know that cancer is usually most active in the young and otherwise healthy subject, and, conversely, that it frequently tends to a slow and protracted course in the aged. It would seem therefore that the growth of cancer shares in the metabolic activity of the individual.

A growth in the breast depends at first for its blood supply on the small vessels actually in the breast, but as it grows the surrounding vessels dilate in proportion, so that the growth thrives more or less independently of the breast.

If oophorectomy acted by producing a premature atrophy of the breast, one would expect to find the most marked benefit in young women with a growth still small and confined to the breast.

Dr. Beatson originally thought that oophorectomy would shew its most marked effect upon young women; this is what one would naturally have expected. The sudden removal of ovarian influences must produce a sudden change in the metabolism of the individual, leading to premature changes in those organs with which the ovaries are in nervous correlation.

The cancer cells originating from, and imitating those of the mammary gland in structure, might be expected to share the changes which the breast have undergone. One might even suggest that the outlying deposits in the skin and glands, originally derived from the growth in the breast and which mimic it in structure, are brought within the same field of influence.

It is a remarkable fact that uterine cancer is in no way affected by oophorectomy, although the subsequent atrophic changes in the uterus itself are much more rapid than those in the breast.

The atrophy then of these correlated organs does not give us the explanation of the benefit derived from oophorectomy in mammary cancer, for we should expect many more spontaneous cures in patients attacked with cancer before the menopause. We know further that cancer not infrequently appears in the breast and uterus many years after the onset of the menopause.

Temporary alteration in the individual's metabolism must be in operation to bring about the degeneration and ultimate disappearance of cancer nodules. What this influence is, it seems impossible to tell.

The whole question becomes more complex when one realizes the fact that cases are affected by the treatment in so many different ways. Taking two women of identical age, duration, and course of mammary cancer, it is impossible to foretell what the effect of oophorectomy will be in either case. Some cases are benefited in a very marked degree, even to a total disappearance of cancerous growths, others are not affected in the least, while yet others are made positively worse. In view of these divergent results it remains to be seen whether the operation will hold its ground as a legitimate procedure in inoperable mammary cancer, or whether it will be abandoned as being too uncertain in its results.

Mr. Henry Morris doubts "whether oophorectomy will take a permanent place in surgery." He considers, however, "that surgeons may justifiably recommend it in cases of chronic inoperable mammary carcinoma after fully explaining the nature of the operation, the uncertainty of the result, and the doubtful prospect of permanence should a cure be obtained."

As the surgeon has no means of foretelling what the result will be in any given case, or what kind of case will be benefited, it follows that no definite lines can be laid down for a successful selection of cases. It therefore rests with the surgeon who is favourably impressed with the operation to perform it in cases which from general considerations may seem favourable, or, on the other hand, the surgeon who considers the ultimate results too dubious would have sufficient reason to discountenance the procedure, and refuse to proceed any further in that direction.

Cases which have hitherto given the best results have been those in which there were recurrent nodules around the scar, secondary nodules in skin and axillary and supraclavicular glands. Large ulcerating primary growths have been known to disappear, and in other instances to diminish in size only, while the general health of the patient has improved.

It is obvious that patients with advanced secondary deposits in internal organs, with advancing cachexia, would be unfit subjects for oophorectomy, but I see no reason why small secondary deposits in internal organs should not be influenced in the same way as those on the surface, provided the general vitality of the patient is good enough to withstand an abdominal operation.

As it is quite impossible to diagnose secondary deposits in most of the viscera in their early stage, it is reasonable to presume that many patients who have been operated upon, and who have benefited to the extent of improved general health and disappearance of superficial growths, have also been freed, or the growth retarded, for the time being at any rate, of their visceral nodules. I would therefore say that a surgeon who is favourably impressed with the operation and its results is justified in performing it in spite of early secondary internal deposits (when general vitality is good), in the same way that he would amputate a suppurating limb in a patient with early lardaceous disease, making the presence of lardaceous disease a direct indication for amputation and not a bar to it, as it used to be considered. Mr. Stanley Boyd, however, states from his analysis of forty-one cases, that "wherever it has been evident that viscera or bones have been affected no improvement in them has taken place."

One or two cases have been published which go to shew that oophorectomy, performed a year or more after the menopause, has been of benefit in recurrent mammary carcinoma. This seems difficult of explanation : for if the ovarian influences had already ceased, the mere removal of small fibrous ovaries could not possibly produce those metabolic changes which we presume are at work when the operation is performed before the onset of the menopause. I should be inclined to attribute any benefit derived at this period to purely psychical influences. One has seen so many instances of patients feeling better, and apparently improving for a while, under various forms of treatment.

Mr. Stanley Boyd concludes from his cases that the best results are obtained when oophorectomy is performed in patients over 40, and before the menopause, and when they are free from bone and visceral complications.

Before passing to the study of certain cases in which oophorectomy has been performed in the Cancer Wing of this Hospital, one would like to quote the views of Mr. Roger Williams of Clifton, who believes that oophorectomy tends to favour, rather than hinder, the progress of mammary cancer. Mr. Roger Williams says that "in the breast the liability to cancer is greatest after the cessation of ovarian activity, when the ovaries are dwindling in size as well as in function.

"Mammary cancer is a disease not of the active breast, but of the breast becoming obsolescent.

"Now oophorectomy favours premature mammary obsolescence, and it therefore seems probable *a priori* that it may favour the development of Cancer."

Mr. Roger Williams, after analyzing the causes of death of a number of patients who recovered after complete ovariotomy for cystomata, concludes "that the cancer mortality was nearly five and a half times greater for those whose ovaries had been extirpated than for those who had undergone no such operation." He also quotes a series of cases lately reported by Neugebauer, illustrating the proneness to malignant disease of persons with rudimentary, badly developed ovaries, and in those in whom ovaries are absent. Mr. Roger Williams' conclusion, therefore, is "that, as a remedy for cancer, castration is worse than useless, and that the sooner the procedure is abandoned the better."

The following cases treated in the Cancer Wing were under Mr. Pearce Gould:—

Matilda B., aged 44, was admitted for carcinoma of both breasts. The growth in the right breast was the larger and had begun to ulcerate. The growth was fixed to the chest-wall, and there were enlarged glands in the corresponding axilla. There was a small growth in the left breast, which was freely movable on the chest-wall; no appreciable axillary glands on that side. Her general condition was satisfactory. Oophorectomy was performed by Mr. Pearce Gould in March 1900. The patient recovered completely from the operation and was seen to be improving in April, when she was comparatively free from pain, and the ulceration of the breast was getting smaller and shewed some signs of healing. On 22 May thyroid colloid was given in half grain doses twice a day. After a month's administration it had to be left off owing to the tremors and nervous excitement which occurred. In August, however, it became quite evident that the little benefit produced by the operation had come to an end, for pain returned and the growth shewed signs of renewed activity. The ulcer was again breaking down. In September nodules appeared in the surrounding skin, and these began to ulcerate a month later. In December the patient complained of inability to see clearly in the right eye, and a week later sight in the left eye began to fail. By the end of December she was quite blind. General condition grew worse and worse, death ensuing in February 1901. Post-mortem examination revealed a secondary growth in the front of the optic chiasma compressing both optic nerves.

The next case presents many points of interest, inasmuch as the patient had carcinoma of the left breast and cervix uteri. She was 52 years of age when admitted into the Cancer Wing in February 1900. Two operations had been performed elsewhere on the breast, one in 1894, the second in 1899. There was no recurrence in the scar. In the beginning of 1898 she complained of pain in the lower part of back, and six months after she noticed a thin watery discharge from the vagina. Oophorectomy was performed at Guy's Hospital in July 1899. On admission into the Wing (February 1900) it was found that the cervix uteri was occupied by a deep ulcer with raised indurated edges; the uterus was quite fixed. The upper part of vaginal walls was also infiltrated. The scar on chest was quite healthy. She had been taking thyroid extract, gr. $\frac{1}{2}$, twice a day. An examination in March shewed that the ulcer of cervix had healed, but there was a good deal of induration of the surrounding tissues. In June it was found that the growth in the vagina had been increasing in size, and that the patient's general condition was failing. Frequent vomiting set in during the early part of August, and the patient died on 17 August.

The chief features of this case, then, are that oophorectomy was performed at the age of 51, when presumably the menopause had already occurred, and that the cervix uteri had been the seat of cancer.

The cervical disease was secondary in point of time to the mammary affection, and was pathologically secondary to it also.

Such an event is, I believe, a rare one. Eight months after the removal of the ovaries the ulcer of the cervix had healed. Could this be attributed to the effects of the oophorectomy?

I should say probably not, judging from the fact that removal of the ovaries has not been noticed to produce any marked beneficial effect on uterine carcinoma. It could only be one of a spontaneous attempt at healing, a phenomenon which has been often observed in carcinoma of the cervix and elsewhere. The disease elsewhere progressed and eventually killed the patient.

The following case of oophorectomy for carcinoma of both breasts shews many points of interest: The subject was 41 years of age, and first noticed a lump in her right breast 2½ years previous to admission. It grew to a large size and eventually ulcerated, the ulcer measuring 2¼ by 1¼ inches. The ulcerated mass was firmly fixed to the chest-wall and had a large vascularized area around it. There were several subcutaneous nodules around the growth. The axillary glands were enlarged, hard, and matted together. The tumour in the left breast was only noticed about six weeks before her admission into the Cancer Wing (16 January 1900). It was then quite movable, not involving the skin or chest-wall. The corresponding axillary glands were not enlarged. Breath sounds were weak over the right base behind, and expansion was deficient, but percussion did not elicit any difference in the note on both sides. There were enlarged glands to be felt in the anterior and posterior triangles on both sides of neck. Patient was admitted on 16 January, and Mr. Pearce Gould performed double oophorectomy on 31 January 1900. She recovered completely from the operation, and on 17 February it was noted that the pain in the right breast was much less, that the vascularized area around had practically disappeared, and the surrounding nodules were smaller. On 20 February the ulcerated area had markedly diminished in extent, measuring ¾ inch by ⅝ inch. The surrounding infiltration had diminished. The nodules were flatter and scarcely raised above the surface. The enlarged axillary (right side) and cervical glands could no longer be felt, and the growth in the left breast was reduced by half. On 2 March ulcerated area measured ½ inch by ⅜ inch; surrounding infiltration still diminishing, and the tumour in left breast much smaller. Patient could now move her right arm with comparative freedom and she did not complain of any pain.

On 9 March the following note was made: There is now no nodule in the left breast. One tiny hard gland to be felt in the left axilla. The nodule above left breast has disappeared, so have those on the lower aspect of right breast. No distinct growth can be felt in the lower half of right breast. The ulcerated area has almost perfectly healed. Nipple firm, fixed to chest-wall. Patient's general condition much improved.

Up to this time these remarkable changes had taken place very rapidly, in fact from day to day one could notice the healing of the ulcer, the gradual disappearance of the nodules, and the shrinkage of the growths in both breasts. But on 27 March, nearly two months after the operation, fresh nodules began to form on chest-wall around the right breast, and on 4 April a small lump was felt in the right axilla. The new nodules were painful. No recurrence in left breast or left axilla. On 16 April it was noticed that patient's bowels had not been opened for two days; they were not relieved by enemata, and on the 17th she was slightly sick. On the 18th sickness had become more frequent, and as it was clear that she was suffering from intestinal obstruction, laparotomy was performed that morning. When the abdomen was opened it was found that adhesions had formed between several coils of small intestine, and one loop had been nipped by these adhesions. The further progress of the operation was interrupted owing to the patient becoming suddenly blue and pulseless, with cessation of respiration. Long continued artificial respiration failed to restore her, and she died on the table.

This case illustrates the improvement which takes place in cases which are going to improve at all, viz., a rapid disappearance of secondary deposits, with healing of ulceration. Fresh deposits, however, had already begun to form two months after the operation, so that one might reasonably assume that the beneficial effects of the oophorectomy would have proved but temporary, and had the patient not died from intestinal obstruction one would have had the painful disappointment of watching a recrudescence of the disease, and the death of the patient from that cause.

The following case, in which double ovariotomy had been performed five months after amputation of the breast for cancer, shews many points of remarkable interest: The patient was 41 years of age when admitted for carcinoma in the Chelsea Hospital for Women on 28 January 1899, with the following history. She first noticed a lump in the left breast two years ago. During the last fortnight the growth increased rapidly. On admission there was a large mass in the upper and outer quadrant of the left breast extending into the axilla. The overlying skin was adherent, and there were enlarged glands in the corresponding axilla. The breast was amputated by Mr. Bland-Sutton. The patient recovered from the operation and was discharged on 28 February. She was readmitted on 16 June 1899 for pain in the lower abdomen, with a history of having lost blood from the uterus three months previously. Since then several other floodings occurred. Periods came on every fourteen days. Very bad pain during last fortnight. Her general appearance was good, temperature 101·8°. There was an abdominal tumour rising above the pubis. The breast scar was healthy. At the operation (performed by Dr. Fenton) both ovaries were found diseased, and on the left side there was a large pyosalpinx. Both appendages were removed. The wound suppurated along the drainage track, but she eventually recovered and was discharged on 15 July 1899. She was seen by Dr. Victor Bonney at the Chelsea Hospital for Women in August 1901, and was then suffering from recurrence in the liver and on the scar; she was jaundiced, emaciated, and ascites was present. She was admitted into the Cancer Wing of this Hospital in September 1901. She stated that the lumps, of which she now complained, appeared about six or seven months previously, and that she has been jaundiced for eight months. For two months she had noticed swelling of abdomen, and was told she had dropsy. She had been losing much flesh lately. Her state on admission was as follows:—

General appearance fairly good, slight blueness of lips and face. Left breast has been amputated. Scar good and healthy for the most part; there is, however, one small nodule in it attached to the fourth rib, about 5 inches from the middle line, the size of a large pea. There is another nodule over the third left costal cartilage about the size of a hazel nut; other small nodules above the left clavicle. There are two hard lumps in the left axilla, and some enlarged glands along the anterior border of the left trapezius. Heart and lungs are normal. The liver extends down to the level of the umbilicus. It is rough on the surface, tender, and painful. There is the scar of an old abdominal section below the umbilicus. In the centre of the scar there is a small fistula with a constant serous discharge.

On 10 December the following note was made: The nodules about the scar are much smaller, the one over the second costal cartilage less than half its former size. The liver only extends a little more than half-way down to the umbilicus, and it is less painful and tender. Abdominal fistula still discharging. The nodules above clavicle are smaller.

On 26 December improvement was still maintained. She was feeling much better in her general health. Some of the nodules have disappeared, and those remaining were still smaller. The enlargement of liver seemed confined to the right lobe.

Patient was discharged at her own request on 8 February 1902, when the following record was made of her:—

General condition very good, abdominal wound still discharging slightly. Liver only reaches about two and a half inches below eighth right rib. The remaining nodules on chest-wall are smaller; the large one over third rib cartilage can just be felt like a shot under the finger. The nodules above clavicle have not all disappeared. There is no jaundice, but some free fluid in the peritoneal cavity.

Patient was seen on 17 March 1902, when it was found that there was only one nodule close to the outer end of scar, and that was quite small. None to be felt in the axilla. The nodules above clavicle were smaller. The liver also was smaller, and reached to two inches below the right eighth rib; it could not be felt in the epigastrium. There was free fluid in the peritoneal cavity. I have neither seen nor heard anything of this patient since.

We find, then, that oophorectomy was performed on this patient for actual disease of the ovaries and not for mammary cancer; in fact she had no visible recurrence at the time. But recurrence took place locally, just two years after the primary operation, and about eighteen months after the "accidental" oophorectomy. From the enlarged nodular condition of the liver, together with jaundice, there was almost positive evidence of secondary deposits in that organ.

This case teaches us that oophorectomy performed shortly after a primary operation for mammary cancer does not prevent recurrence or even delay it, for two years is a sufficiently common period for recurrence to take place in. Could the disappearance of the nodules and the shrinkage of the enlarged liver be attributed to the oophorectomy? It may or may not have been so. It may be argued that any influence which the oophorectomy produced might have retarded the growth of the cells, which had probably been sewn in their secondary foci before the operation was performed, and this retarding influence so lowered their vitality that the secondary deposits were short-lived. On the other hand, if no credit can be given to the oophorectomy from the fact that secondary manifestations became evident eighteen months after it had been performed, and only shewed signs of subsidence twenty-eight months afterwards, then we can only fall back on the theory of spontaneous disappearance.

A sufficient number of cases are on record to shew that secondary deposits do sometimes disappear spontaneously, though they are few and far between. The changes which took place in the liver were very remarkable. The signs and associated symptoms pointed conclusively to secondary infection of that organ; and it must be owned that it is a very unusual thing for carcinomatous nodules in the liver to subside, the invariable course being one of progression, so that this case must, at all events, be looked upon as a very peculiar coincidence.

Oophorectomy has not been found to have the same beneficial effect upon carcinoma of the uterus. This is the more remarkable, seeing the closer physiological relation which exists between the ovaries and the uterus than between the ovaries and the breasts. This conclusion has been sufficiently established to render the operation no longer justifiable, and the two cases on which Mr. Gould operated shew the futility of the procedure.

The first patient was 40 years of age, with an ulcerating growth of the cervix invading the vaginal fornices. The uterus was quite fixed. Oophorectomy was performed on 12 March. On 4 April patient was convalescent, and began to take thyroid colloid. On 11 May a note was made that the ulceration was less, but on 18 June it was quite obvious that the growth was larger and the ulceration more extensive. She was discharged from the Wing at her own request on 31 July.

The second case was that of a patient, aged 38, with carcinoma of the cervix invading the anterior vaginal wall. The uterus was still slightly movable. There was a secondary deposit in the abdominal wall below the umbilicus. Oophorectomy was performed on 3 April. On 1 May a note was made that the uterine growth shewed no signs of improvement, and on 11 May two small nodules were noticed in the scar in the abdominal wall. Her general condition grew worse and worse, death taking place on 16 June of the same year.

In connection with the subject of oophorectomy for uterine cancer, the following case, in which cancer appeared in the uterus of a patient twelve years after she had double ovariotomy performed, will be read with interest:—

The patient is now 39 years of age, but at 27 she was operated on by Dr. Playfair at King's College Hospital, who removed both ovaries for cystic disease. She menstruated regularly up to this time, but after the operation she ceased to menstruate. She had two children, the first when she was 19, the second at 21 years of age. In March 1903 she was seized with violent hæmorrhage, which first drew her attention to her present illness. Hæmorrhage recurred two months later. She was examined by Mr. Bland-Sutton at the Chelsea Hospital for Women in April 1903, who found that she then had carcinoma of the cervix too far advanced for any radical operation. She is now in the Cancer Wing, and her condition is as follows: Sallow complexion, but well nourished. The cervix uteri is occupied by a narrow transverse ulcer, the anterior edge of which is very hard and prominent. The posterior part of the ulcer merges on the posterior vaginal fornix, which is hard and infiltrated with growth. The uterus is quite fixed, and the pelvic floor indurated. She is singularly free from pain.

THYROID EXTRACT.

Closely associated with oophorectomy for the relief of inoperable cancer of the breast is the administration of thyroid extract. I believe the treatment is also associated with the name of Dr. Beatson, who was of opinion that the effect of thyroid would be to promote the degeneration of the cancer cells, and if given after oophorectomy the conjoined effect would materially hasten the process. The treatment with thyroid has been tried in the Cancer Wing both alone and in conjunction with oophorectomy, but the result has not been of any benefit to the patients.

I have before me the notes of two patients, aged 46 and 50, with mammary carcinoma. They had taken thyroid extract for two and four months respectively. In neither case was there any result one way or the other.

A third patient, aged 45, took thyroid extract for ten days. After four days of ½ gr. doses of the extract her pain increased, and she felt much worse in general health. Treatment was omitted for awhile, and tried again with a precisely similar result. It was eventually discontinued.

Four of the cases described under the section dealing with oophorectomy were treated with thyroid extract as well. No direct result could be traced to the thyroid extract in three of them, but in the fourth the patient developed marked tremors of the fingers, together with general irritability of temper after a week's treatment. It had therefore to be discontinued on this account.

I know of no reported cases where thyroid extract could be definitely credited with doing much good in these cases. Some have "thought" that some good was obtained; others, that a beneficial effect of a temporary kind "seemed probable."

The conclusion therefore is that thyroid extract alone, or in conjunction with oophorectomy, has not in any way fulfilled the hopes that were founded on it.

High-Frequency Electric Currents.

The value of the treatment of cases of malignant disease by the application of electric currents of high potential and rapid frequency has, it need hardly be said, been carefully tested in the Cancer Wards from the time of their first introduction. That patients are influenced for good in some forms of disease by being subjected to a course of treatment with these currents there is no doubt, but we cannot rely upon them as a means of cure in malignant disease. It is agreed by all who have used these currents that the therapeutical effect is one of increase of tone and general nutrition. The patients feel better, their appetite is increased, and for a while at any rate all seems to go well with them. On the other hand, is the effect on the growth purely a local one? Many workers have reported arrest of growth, disappearance of the tumour, and even complete "cures."

Dr. Freund stated at the discussion which took place on the subject at the last meeting of the British Medical Association, that "the physiological effects of this method are solely due to the spark discharges." Notwithstanding this statement it must be conceded that patients treated solely by a brush discharge, where no sparking has been permitted, are benefited in a general way, and manifest the concomitant phenomena of increased tone and nutrition. It would appear that a brush discharge, whether accompanied by sparking or not, has a decided local influence upon an ulcerated surface, whether it be simple or malignant. The ulceration shews a decided tendency to lessen; fungating areas sometimes break down; discharges decrease, grow thin and less offensive. I am inclined to think that these are purely local effects, apart from any general benefit which the patient might have received as a result of increased tone and improved nutrition.

The treatment by high-frequency currents has been given a fair trial in the Cancer Wing of this Hospital, and the results may be illustrated by the following cases:—

Mrs. B., aged 68, with a large ulcerating carcinoma of left breast, was treated daily for four months with a brush discharge, each application lasting for ten minutes. After a month's treatment she expressed herself as feeling better, and that pain was much less. As time went on the discharge, which was very offensive, grew less so, and the whole ulcerated surface grew clean and smooth. The growth, however, never diminished in bulk, in fact there was evidence of extension towards the axilla—very slight, but sufficient to shew that the activity of the growth had in no way diminished.

A second case of sarcoma of the breast was treated in a similar way. In this case treatment was only continued for six weeks, as the patient was old and feeble and did not like the process. There were no very obvious changes.

Mrs. C., aged 56, had a fungating epithelioma of vulva with very offensive discharge. She was treated by a brush discharge for ten minutes daily. The fungating parts soon began to break down, and after two months' treatment the growth was represented by a deep clean ulcer with thin watery discharge. The edges were thin and overhanging, but the deeper part of the growth still maintained its hold, and did not diminish beyond this stage. In the meantime secondary deposits appeared in the inguinal glands. These broke down and formed deep foul cavities. The patient's strength began to fail, and pronounced cachexia was setting in. I decided that treatment could be of no further avail, and it was discontinued after four months.

Another case shewing some points of interest, both as regards method used and subsequent course of events, was the following:—

Emma C., aged 32, had suffered from carcinoma of the rectum for eighteen months, and was at this stage inoperable. The growth had completely surrounded the bowel, occupying about one and a half inches in a longitudinal direction. It was quite fixed to the surrounding parts, but there was sufficient lumen to admit the index finger easily, and one could just reach the top of the growth. The surface of the growth presenting into the lumen of the bowel was soft and shreddy, but there was no active breaking down, and the discharge was simply mucoid. The patient's general nutrition was, at this period, fairly well maintained, but she sometimes had paroxysms of very severe pain referred to the whole region of the pelvis. The method of treatment adopted was to introduce a glass electrode, 6 inches long and $\frac{5}{8}$ inch in diameter, into the rectum. This was of sufficient length to pass through the lumen of the growth. After the electrode was in position the current was turned on. In this way any sparking or shock was avoided. An application of ten minutes was allowed every day. Before removing the electrode the current was turned off, also to avoid any sparking when the current was broken. This plan of treatment was maintained for nearly four months. After the first week she expressed herself as feeling better, and one was certain that she did not have such frequent paroxysms of pain. For two months she felt very hopeful; the relief from pain was very encouraging. The bowels acted regularly and easily with a mild laxative. The lumen of bowel shewed no signs of diminution, but the bulk of the growth still maintained the same size. The patient's general appearance, however, did not improve; pallor increased, and it was obvious that she was growing thinner and losing ground. After about three months' treatment pain increased, both in frequency and intensity, and the patient gave up all hope. The growth was creeping upwards. Mr. Pearce Gould examined the patient soon after this, and was satisfied that the treatment had done nothing towards reducing the size of the growth, and with the increasing emaciation and pallor it was obvious that to continue it was useless. Up to this time there was no obstruction. About ten days after the treatment was discontinued difficulty with the opening of the bowels began to shew itself, and with this there was some slight abdominal distension. On rectal examination I found that the growth had now encroached considerably upon the lumen of the bowel, and that complete obstruction was imminent. Abdominal distension increased, which necessitated a colotomy. This was performed by Mr. Gould, but the patient did not recover from the shock of the operation and died during the evening of the same day. There is no doubt that the daily passage of the electrode through the lumen of the growth, and possibly the action of the current, did delay the obstruction of the bowel, so that the lumen was maintained for the passage of fæces, although the treatment had no power to check the progress of the deeper parts of the growth, or the gradual onset of emaciation and cachexia.

I may mention the case of a woman with a flat ulcerating carcinoma of the breast, whose skin was so irritable in the immediate neighbourhood of the growth that both the X-rays and the high-frequency currents produced an intense dermatitis after a few applications. This was associated with great smarting and burning feelings, which were very distressing to the patient; so, having regard to the uncertainty of the ultimate result, one did not press a treatment which caused so much discomfort to the patient.

Before leaving the subject of high-frequency currents one will allude to the work of Mr. James Allan, and to the cases which he published in the "West London Medical Journal" of July 1902. His results appear to have been very remarkable, for his cases shew decided improvement, including disappearance of growth, healing of ulceration, and marked improvement of general health.

A case of sarcoma of the antrum invading the nasal cavity had been operated upon freely in August 1899. There was a recurrence a year later which was removed under cocaine. In July 1901 there was a further recurrence with much dragging pain. The growth was easily seen in the nasal passages. The patient looked very ill, and complained of much pain. The current was applied for fifteen minutes at a time. After the second application the pain began to subside and the growth to become less. In all the patient had fifteen sittings, at the end of which time the visible growth had disappeared and the pain entirely gone. The growth was a spindle-celled sarcoma. The patient had had no recurrence in April of the following year.

A case of recurrent mammary carcinoma was treated in the same way. After twenty-eight applications all trace of recurrence had disappeared.

I will only mention one more of Mr. Allan's cases—one of epithelioma of the cervix uteri. It was too advanced for operation. Treatment began in November 1901 to 2 January 1902. It was discontinued for a while, but resumed on 26 January. Pain and discharge were decreased, the patient slept well, and appetite improved. The growth seems to be entirely arrested, and the patient has gained over a stone in weight.

A reference to my own cases will shew that I could record no such successes. I think a fair trial has shewn that high-frequency currents have not given the results which were anticipated, and unless many important modifications can be introduced I believe that the treatment will be abandoned as a potential " cure " for cancer.

THE X-RAYS.

In X-rays we have an agent which has perhaps done more for the relief of inoperable cancer than any method hitherto known.

In this section I do not propose to discuss the *technique* of their application, but simply to run over some theoretical considerations, and to record in these reports some of the results obtained in cases treated in the Cancer Wards of this Hospital. The results so far obtained have been sufficiently frequent and consistent to eliminate all explanations of chance or spontaneous retrogression.

It would appear, therefore, that in the X-rays we have a valuable agent in the treatment of inoperable cancer. But we cannot tell beforehand to what extent each individual patient will be benefited ; and we are often surprised by the fact that two patients similarly affected, so far as we can judge, and treated in exactly the same way, shew very different results. In one case there will be no question as to the benefit derived from the treatment ; in the other no result can be seen. The most encouraging results hitherto obtained have been in external forms of cancer—growths which are on the surface and ulcerating, or nodules either in the skin or in the subcutaneous tissue.

I think we may state with some degree of certainty that the X-rays relieve pain ; they favour the healing of ulcerating surfaces, and they improve the general well-being of the patient. So far these results have been only temporary, the period of relief varying from weeks to years. The relief from pain is usually sufficiently well maintained and constant in every case to enable one to attribute such relief to the direct local effect of the rays, and not to a mere process of suggestion. I have been struck with the almost constant temporary relief from pain which patients obtain whenever any new form of treatment is adopted. This cannot always be attributed to the agent used.

That some forms of cancer shrink and sometimes disappear under the influence of X-rays we have ample proof. Several of our cases shew this. It is also remarkable how subcutaneous nodules disappear without any affection of the skin whatever. The rays must act on the cancer cells in a manner which causes them to undergo some kind of degeneration, with subsequent absorption by the healthy cells surrounding the neoplasm, which are no doubt stimulated at the same time.

The therapeutical action of the rays, whatever its nature may be, seems to exert most of its influence on the surface or just below the skin, for it is in cancer in these situations that we see the most marked changes.

I cannot say that so far I have seen much benefit derived in cases of uterine cancer. Patients have been relieved of pain, and the progress of the growth has been checked for varying periods, but I have never witnessed any marked healing of ulceration or disappearance of growth. After a varying period of improvement activity of the growth becomes manifest and the disease runs its course. On the other hand, I have seen cases of uterine cancer with ulceration heal or partially heal without any treatment whatever. A woman is now in one of the cancer wards who, when admitted last year, had a carcinomatous ulcer of the cervix, typical in every way. She was discharged after a few weeks' stay at her own request. She remained at home for about a year and has now been readmitted. I find that the cervix has completely ulcerated away and disappeared. There is now no sign of ulceration, but the pelvic floor is occupied by a fixed indurated mass. She is emaciating and will not live many more weeks, but the original growth now presents a very different character.

With these instances before us it is difficult to decide how far the healing of ulceration is spontaneous or due to any effort on our part. That the rays have a direct action on epithelium is shewn in the local dermatitis and burning which are sometimes produced. Some patients are peculiarly susceptible to their action, a red irritable surface being produced after a few applications. Pigmentation is also very common.

X-ray burns are very remarkable lesions. They cause much pain and take many months to heal. The worst burns that I have seen have been on the buttocks in uterine cases where high penetration tubes had been used. The healing process runs a peculiar course. The outlying parts heal, leaving a rather stiff parchment-like surface, while towards the centre a dense adherent slough forms, measuring superficially, perhaps, the size of a half-crown piece. This now proceeds to separate slowly, and a month or two will probably elapse before the whole thing heals.

Before proceeding to describe some of our cases, I should like to mention an isolated case reported on by Mr. Shattock,* which shewed practically no result from X-ray treatment as demonstrated by the microscope.

The tumour (carcinoma of breast) was exposed to the rays for three months. Clinically, it underwent diminution in size, and became more movable on subjacent structures. It was then removed and examined microscopically. The examination shewed no changes in the growth. The spheroidal cells shewed no necrotic change, and the only fatty degeneration of any note concerned the cells of the few mammary lobules still remaining about the edge of the growth. At no part of the margin had the growth ceased to extend. There was no degeneration, no phagocytic invasion of the epithelium, and on every side the growth was in an extending condition.

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* Path. Soc. Trans., December, 1902.

This case shews, what has been so frequently observed, that some cases are absolutely unaffected by the rays. But this clearly cannot be the course in every case, for we have seen tumours greatly diminish in size, and nodules entirely disappear. Some change does take place in the cancer cells in these cases, leading to their solution and gradual absorption, and that change is possibly one of fatty degeneration.

The first case which I shall draw attention to is that of an elderly patient, aged 71, and admitted in February 1901. She had an ulcerated growth of the right breast measuring 3½ inches across and 3 inches vertically, with induration of the skin for several inches around. There were hard glands in the axilla. She was also suffering at the time from what appeared to be an attack of bronchitis. She had frequent attacks of hæmorrhage from the breast. X-rays were applied for the first time on 9 September, with applications of ten minutes five times a week. In October it was noted that improvement was taking place. There was no hæmorrhage, discharge was less, and patient had very little pain. Improvement continued steadily, and by March 1902 the ulceration had quite healed, the tumour had shrunk to a quarter the size, and there was a layer of sound epithelium over the growth. Beyond this stage there has not been any change now for over a year, although the rays have been continued at intervals. The points to be noted are the great diminution in the size of the growth, the complete healing of the ulceration, and the spread of a layer of sound epithelium from the surrounding skin over the growth. The patient is now in the Cancer Wing enjoying very fair health. She is up and about every day and quite free from pain. One now sees a small tumour, a quarter its original size, quite fixed to the chest-wall, and covered over with sound epithelium. The rays seem incapable of producing any further change.

Mr. Andrew Clark has published a case ("British Medical Journal," 8 June 1901) which, if described in detail, would correspond almost exactly to the above.

The growth of the mammary tumour all but ceased, and the small portion left was covered over with sound epithelium. This kept so for several months, but eventually the epithelium began to break down, forming several foci of ulceration. Whilst in this stage the patient had an attack of bronchitis, from which she died.

Another case of great interest, shewing remarkable changes, was that of Mary W., aged 41, admitted into the Cancer Wing in November 1902. She gave the following history: A lump was first noticed in the right breast seven years ago. It continued much the same size for two years; then it began to grow larger, and became painful after the birth of last child five years ago. Operation was advised but was not consented to.

In March 1902 she went to St. Bartholomew's Hospital, but the tumour was pronounced inoperable. About this time the growth began to ulcerate, and soon after small lumps appeared on the chest-wall. She was gradually losing flesh, and was frequently sick.

The following was her condition on admission into the Cancer Wing:—

Patient is sallow and emaciated. The right breast is the seat of a tumour about the size of a large tangerine orange. It occupies the whole breast, which is much atrophied. The tumour can be moved over the chest-wall, but the skin is adherent to it and superficially excoriated. The nipple stands out prominently in the centre of the excoriated area. There are large hard glands in the right axilla, to which the skin is adherent. There are several nodules in the left breast, and enlarged glands in the corresponding axilla. There are numerous nodules scattered in the skin over the front of chest-wall, with nodules in the ribs and rib cartilages. The anterior and posterior triangles of neck on both sides contain enlarged glands, and the overlying skin studded with secondary nodules. The skin over the right side is indurated and fixed. There are secondary nodules in the skin over abdomen, one being specially large. The glands in both groins are very large, both horizontal and vertical sets being the seats of new growth. Her general condition was one of extreme weakness. X-rays were first applied on 20 November 1902 to the breast and the nodules in the neck and abdominal wall.

On 3 April I made the following note: Patient has shewn marked improvement under the rays. The original growth is only half the size it was on admission, and can be moved freely on the chest-wall. The superficial excoriation of skin around nipple has not healed. It is slightly wider if anything, but only involves the superficial layers of the skin. The whole skin is not destroyed. The skin over the right side of neck, which was parchment-like in November, is now quite soft and freely movable over the underlying structures, and the glands are much softer and smaller. The secondary nodules in the skin have quite disappeared. The nodules in the skin over the chest-wall have also disappeared; the skin is soft and pliable. There is only a very slight unevenness along the ribs and rib cartilages, which before were studded with nodules. All the nodules in the skin over abdomen have disappeared except one, which is still prominent. The glands in the groins remain much the same size; the rays are not being applied to them. The glands in both axillæ are smaller. On 4 April the rays were applied to the groins. On 1 June I noted that the glands in the groins were smaller and more movable, and that the nodule in abdominal wall was flatter. Patient's general condition was most excellent. Her appetite was good, she could sit up in bed, and she was quite free from pain.

This date (1 June) marks the beginning of the end. I noticed a secondary nodule in the scalp over the right parietal region, and, as subsequent events proved, secondary deposits were forming internally, in spite of the excellent improvement which had taken place. On 15 June the patient complained of not feeling quite so well, and she was sick on the same day. Sickness continued every day until the 20th, when she was seized with convulsions. The muscles of the face on the right side began to twitch first, and the convulsions spread to the head and neck muscles. The arms and legs were drawn up, but were not convulsed. The pupils were dilated, and both eyes deviated to the right. She died without having regained consciousness.

Unfortunately a post-mortem examination was not permitted, but one presumed that death was due to a secondary deposit in the brain, probably at the lower part of the left Rolandic area.

This case well illustrates the present limitations of the X-ray treatment. Patients do well in many cases where the lesions are confined to the surface, but we have no means of influencing secondary deposits in internal organs; nor would it appear from this case that X-rays prevent dissemination even from foci, which are apparently being favourably influenced by them. One could multiply cases to shew the same thing, viz., that the treatment by X-rays does prolong life in many patients suffering from external cancer, and that it has very little if any influence on the progress of internal cancer. One would be inclined to infer that these invisible rays are complex; certain of them having a therapeutical action are incapable of much penetration, whereas others possessed of high penetrating power do not share the same therapeutic value, but produce the photographic effects of which so much use is now made in surgery.

Cancroin.

This was first introduced by Prof. Adamkiewicz of Vienna in 1893. The original cancroin consisted of the "poisonous products of cancer tissue," but as its general use was attended with practical difficulties Prof. Adamkiewicz recommended a substance with a similar action called neurin ($C_2H_3N\ (CH_3)\ OH$). Cancroin is administered hypodermically in doses of 0·5 to 1·0 gramme or more daily, and when possible in the neighbourhood of the growth. Several reports are to hand giving results of the treatment with cancroin among continental workers, and these reports would lead one to believe that a great boon to humanity had been discovered. Carcinoma of different parts have been treated, viz., face, larynx, breast, stomach, and uterus with marked beneficial results.

The following case reported by Dr. Zwintz of Vienna reads with all the hopefulness that one could desire:—

"Mrs. S. came to me for the first time on 12 June 1900. She had been suffering for a considerable time from hæmorrhages *ex vagina*. On examination I found the portio uteri disappeared in a mass of tumour. The patient had recently lost much flesh. I sent the patient to the General Hospital (15 June

1900), where an operation was not considered advisable, as an extension of the cancer into the bladder and rectum was to be expected almost immediately.

"I now had recourse to cancroin. On 17 June the first injection was made, which was repeated every other day. On 26 June, after the fifth injection, the patient came to me radiant with happiness and told me that it did her so much good! I found that the tumour had become softer and had decreased considerably in size. Since that time the condition of the patient has remained good. For this reason I was able to limit the injections to two, and recently to only one per week. The hæmorrhage has almost ceased. The portio appears smaller and movable. The woman does her domestic work, has a good appetite, sleeps well, and no longer loses flesh. The extension of the cancer into the bladder and rectum, which was expected to take place half a year ago, has not only not occurred, but as a matter of fact no one would at the present time suspect an invalid in Mrs. S.

"In May 1901 the patient had so far recovered that she felt perfectly well, and could again undertake her usual employment. In October 1901 it could be established without doubt that the recovery had remained permanent."

I have selected this case as the most striking among numerous others of a like nature. My own experience of the use of cancroin has not been so fortunate. If such a result could take place in a definite and advanced case of cancer of the cervix, one is surprised to find that no benefit whatever has accrued from its use in other parts.

Cancroin is supposed to destroy cancer cells by a process of fatty degeneration, bringing about disappearance of the disease by absorption or by expulsion. I have used cancroin in three cases; two were carcinoma of breast and one an epithelioma of the vulva. Cancroin is a colourless watery fluid with a slight admixture of carbolic acid for preservation.

My first case was a woman with a large ulcerating carcinoma of the left breast, with much discharge and fœtor. I commenced with seven minims, which were injected in the immediate vicinity of the growth. One injection was given every morning. They caused a considerable amount of pain, which the patient said she could scarcely bare. I, however, encouraged her to continue the treatment as I had wished to give it a thorough trial, more especially with regard to its local application, and as this was a very good case for observation. After the first week I was obliged to discontinue the injections locally, as the patient grew quite faint during the injection, because, she said, of the intense pain. I continued them subcutaneously in arm and forearm for nearly eleven weeks. A small swelling always appeared at the seat of the injection. The swellings were larger in the loose subcutaneous tissues of the arm than in the indurated tissue of the breast. One noticed an indurated area on the day after each injection. This was oval and hard, and reached the size of a pigeon's egg at the end of the second day, remaining stationary for a week or ten days. They took a month to six weeks to subside; there never was any suppuration. The swellings around the growth were smaller and disappeared earlier. There was no elevation of temperature nor any other constitutional manifestations during the period of treatment. After the first fortnight the patient expressed herself as feeling much better, and as time went on I almost persuaded myself that the tumour was becoming smaller. These faint hopes, however, were soon destroyed, for after ten weeks' treatment one had to recognize the fact that no change for the better had taken place. The tumour went on its destructive course.

Case No. 2 was that of an elderly patient with a chronic contracting carcinoma of the breast with superficial ulceration. This also was an excellent case for observation, but there was nothing in the way of improvement to observe. The injections were here made in the neighbourhood of the growth during the two months of treatment. The local reaction was much the same as regards the swellings, but the pain caused was very little. As no change had taken place one way or the other, I discontinued the injections at the end of two months.

Case No. 3 was a woman aged 56 with an epithelioma of the left labium majus. There was a deep fungating ulcer with very foul discharge. The injections were made locally for six weeks. Certainly during the treatment the fungating part did melt away, but whether that was due to any action of the cancroin or simply by a process of necrosis I would not like to say. The injections caused a fair amount of pain, but the patient bravely continued to endure them for six weeks. Although the ulcerated surface kept clean, and was certainly sweeter than before, there was ample evidence to shew that the growth was creeping up to the mons veneris, and that the inguinal glands were fast becoming the seats of secondary growth. These trials do not encourage one to repeat the treatment.

Violet Leaves.

This method of treatment created some sensation for a time, partly no doubt owing to its simplicity (it is a popular saying amongst the laity that the cure for cancer will probably be something very simple), and partly from the fact that a patient was definitely stated to have been cured by its use, and her case brought prominently before the public by a London daily paper.

Judging from the number of enquiries which I have had on the subject, it was evident that people had taken up the matter seriously, and were anxious to follow our lead if we could give them any encouragement. Unfortunately these hopes were short-lived, for after a fair trial the treatment proved of no benefit.

The method consisted of making an extract of the leaves by maceration in boiling water, applying a piece of lint soaked in this extract on the diseased surface, and changing the dressing twice or three times a day according to the amount of discharge. Uterine cases were treated by passing a tampon soaked in the solution into the vagina, and so brought in contact with the diseased cervix. In no single instance did any good result, not even relief from pain, and in one case certainly the discharge from the breast became much more offensive.

Marigold Ointment.

A remedy of a somewhat similar nature was more recently submitted to me for trial by a gentleman interested in the subject, and who had observed a remarkable cure in a patient who had an extensive ulcer of the leg. The nature of ulcer, whether epitheliomatous or otherwise, was not stated. The patient in question, aged 65, had suffered for several months, and was always in pain. The treatment consisted in applying an ointment made from the petals of the flowers of African marigold. An active principle was first extracted with spirit, and this was mixed with mutton-fat to form an ointment.

In the written report which I have of the case treated it is there stated that the man was quite healed in nine months. His relief from pain was marked from the outset. I have tried the ointment, but cannot report any curative benefit from its use. It formed a clean soothing application for ulcers, but they shewed no signs of healing. I find marigold flowers quoted in the American Pharmacopœia, and credited with the power of healing ulceration.

Liquor Ammon. Fort.

My attention was drawn to this drug as a supposed "cure" for cancer by a gentleman who made certain observations regarding its use whilst out in Australia. My informer states that while travelling in Northern Queensland (I may here mention that this gentleman was formerly a medical student) he came across a man who appeared to have a cancerous ulcer of the tongue, and was asked to treat the case. The treatment which suggested itself to him was to "cauterize" the ulcer, but none of the recognized caustics were at hand. He, however, obtained some liq. ammon. fort., which he applied to the ulcer. He found that the ulcer became clean and began to heal, and subsequently got quite well.

His second case was in New South Wales, where he saw a man with a tongue to all appearance exactly similar to the previous case. He recommended him to go into a hospital to be treated, as there was one only fifty miles away.

He heard nothing more of these two men for twelve months, but at this period he was told that the second case had been diagnosed as cancer by the hospital authorities, and had since died. The first man had not had any recurrence of his disease. His only reason for supposing that the first case was cancer was that it looked exactly like the second, and as this one was certified by the hospital authorities as cancer, he reasonably concluded that the case he saw and treated was likewise one of cancer. But we know that certain syphilitic and tubercular affections of the tongue, even "teeth" ulcers, resemble cancer so closely that only the microscope can enable us to arrive at a correct diagnosis. It is easy to see therefore how so many different remedies have "cured" isolated cases, the explanation being that they were not cancer at all, for when these same remedies are tested on undoubted cancer in hospitals no "cures" are reported. This has been my experience with liq. ammon. fort. I have tried it in cases of ulcerating mammary cancer, but have failed to get any permanent benefit. Its only action was to clean the surface and render the discharge less offensive. I also found the method very painful, and the patients so objected to it that one could scarcely press a method which added much to their distress and little to their benefit.

MOLASSES.

One of the latest of these empirical methods of treatment comes from Australia, viz., the treatment with molasses. The origin of the method is interesting, and the cases were published in the "Mackay Standard."

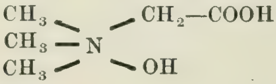
"Mr. B. had a growth in the throat, which in six months increased to such an extent that it nearly choked him. When feeding his horses with a mixture of molasses and chaff, he put some molasses into his mouth and found that it "bit" the affected part for about ten minutes. He felt a slight relief after the first taste of molasses, and thought it wise to continue taking it, which he did about three times a day and about a teaspoonful each time. In ten days from taking the first dose of molasses the growth had entirely disappeared, and as this happened in January last (1902) the growth no doubt has been permanently removed by molasses."

"Mr. C., the second person referred to, suffered from a growth in the stomach, which caused him awful agony for many months. After hearing of Mr. B.'s cure, he tried the molasses, and in three months he was completely cured and able to resume work."

The paper goes on to say that the growth in both cases had previously been diagnosed as cancer, and that C.'s case had been given up as incurable. The latter patient took two teaspoonfuls three times a day.

The first question that naturally arises is the correctness of the diagnosis in the two cases mentioned above. The second is, what could there be in molasses to modify the growth of, or destroy cancer cells? Molasses is derived from the sugar-cane. The sugar-cane is first crushed to extract the juice; this is subsequently concentrated by boiling. When the necessary degree of concentration is reached, the material is poured out into large wooden trays finely perforated at the bottom. As the viscid mass cools the sugar crystallizes from above downwards, and a black thick fluid trickles through the perforations into vessels placed beneath for its reception. This black stuff is molasses, and is the uncrystallizable residue during the manufacture of ordinary brown sugar.

I am indebted to Dr. Kellas, Lecturer on Chemistry at the Middlesex Hospital Medical School, for the following facts regarding the composition of molasses:—

Crystallizable sugar	40—45 %
Invert sugar	20 %
Organic substances, chiefly Betaine—	
	10 %
Soluble ash	4—10 %
Water	20—30 %
Insoluble ash	Variable

Molasses is by itself quite harmless, and in fact it is largely used on the plantations for fattening animals and for the distillation of rum. I had some difficulty in getting any of it at first, but eventually obtained what seemed like ordinary black treacle from a firm in London. Soon afterwards, however, through the interest of Mr. Henry Morris in the matter, I obtained some genuine molasses from Louisiana, which I am now using. I am following the directions of Dr. Henzell, the medical officer in charge of the Mackay Hospital, Queensland, in its administration. They are essentially as follows:—

It must be taken on an empty stomach four times daily; to be given in milk and water only, nothing else. The dose should commence with one drachm, and be gradually increased to two ounces. It is essential that the patient under treatment should entirely abstain from alcohol, and that the diet should be such as to avoid vomiting and diarrhœa. The molasses must be from cane-sugar—pure and unrefined.

I now have under treatment several patients with carcinoma in different situations. They comprise seven uterine, two breast, one rectal, and one sarcoma of tonsil. I apply the molasses locally as well, *i.e.*, the ulcerated breasts are dressed with it instead of ointment, and tampons soaked with it are introduced into the vagina and so brought in contact with the ulcerated cervix. The vagina is douched prior to each application. This is done twice, and in cases with much discharge three times a day. The patients as a rule do not dislike the treatment, but it produces a feeling of nausea and even sickness in some cases, and others dislike the mechanical discomfort which the vaginal tampons cause. A mild attack of diarrhœa is sometimes produced, but this soon ceases when the dose is lessened or the treatment omitted for a couple of days. Some of the cases have been under the treatment for nearly two months, and although there is practically no improvement it is being continued with the hope that some good may follow. I did think at first that a case of sarcoma of the tonsil had some relief from pain, coughed less, and breathed better after having taken molasses for ten days, but she has since died. Ulcerated surfaces are kept clean, but I have not noticed any attempt at healing; it lessens the fœtor of uterine discharges, but does not affect the amount in any way.

Drugs.

Very few drugs have been used in these wards, *i.e.*, drugs credited with any specific effect on cancer. I may mention two: Chian Turpentine and Aniline Chloride. Mr. Morris prescribes Chian turpentine in the following manner:—

℞	Chian turpentine	℥ j
	Sulphuric ether	℥ ij

Take of the above ℥ j and add ℥ ix of mucilage of acacia. This makes a ℥ x mixture, of which a dessert spoonful is to be taken three times daily.

The mixture is by no means pleasant to take, and produces sickness sometimes. Chian turpentine was at one time boomed as a "cure" for cancer. I don't think much is said for it now, beyond the possibility of rendering discharges less offensive. A very good patient with carcinoma of the cervix uteri took this mixture regularly every day for nine months, when she begged to leave it off. Her disease has steadily progressed. She now has a vesico-vaginal fistula. Chian turpentine has also been combined with sulphur and given in pill form. It is better tolerated in this way, and does not cause sickness.

I have used aniline chloride subcutaneously in a ten per cent. solution in dilute alcohol. Ten drops were injected twice a week. Two cases of mammary carcinoma were thus treated, but I did not observe any benefit from its use.

General Management of Cases.

The symptom which one has almost constantly to treat in these advance cases is pain. It is remarkable how pain diminishes after the patients have been in the wards for a few days. The mere fact of their being made comfortable, soothingly dressed, and regularly douched when necessary accounts for this change. Many applications are used to sooth painful ulcerations. I find an ointment of eucaine, 5 grs. ad ℥ j, and vaseline of great service. I sometimes use orthoform where there is much offensive discharge. There is no better douche than Sanitas in uterine cases and as an irrigation for external ulcerations. It diminishes any fœtor almost immediately. Weak spirit and water make an excellent wash for fungating surfaces; the tissues are hardened, and the fœtor and discharge are greatly diminished. A wash of weak perchloride of mercury is also very useful in these cases. Patients with vesico-vaginal fistulæ often complain of a good deal of smarting and pain in the vulva, due to the constant dribbling of urine. The skin is often superficially excoriated. A perchloride wash and a subsequent dressing of eucaine and vaseline give the patients much relief. In rectal cases a suppository containing vaseline, eucalyptol, and iodoform is very useful, but if there be much pain quarter or half grain morphia suppositories must be used. The intensity of pain in different patients and the manner in which each patient reacts to pain are so variable that one has to meet each case accordingly. As I said before, pain diminishes considerably in some patients after they are comfortably housed and skilfully nursed; but later on, and in others from the outset of admission, something more has to be done to give them relief. My rule is to start with the mildest anodyne and to leave morphia to the very last, falling back upon the latter, so to speak, as a final resource. Our patients look much better and keep much better nowadays than when morphia used to be given almost indiscriminately. Patients who are given morphia regularly two or three times a day become absolute wrecks. Pain is relieved it is true, but owing to the moral inversion of the patient she is unable to withstand the slightest ache, or even thought of pain, and so craves for the drug. To satisfy the patient the drug has to be repeated at more frequent intervals or in larger doses, until at last all appetite is lost, anæmia and emaciation are hastened, and the sallow corpse-like spectacle is produced which one knows too well.

I find a mixture of phenacetin and citrate of caffeine most excellent for the relief of the milder forms of pain and discomfort, in fact the majority of the patients in the Cancer Wing get all the relief necessary from it, and never require anything else from first to last. In other cases of a more severe type opium is given, either in pill or liquid form, and I find liq. opii. sed. ten minims with Hst. Caryoph. of the Hospital Pharmacopœia very agreeable to the patients. Of the numerous hypnotics very few are used, as the patients are usually not kept awake by pain; those that I sometimes give are sulphonal, trional (hydrol), and paraldehyde.

There does come a time in many cases when morphia has to be given, and one usually begins with very small injections, two and three minims at the most. Patients do not become slaves to morphia when it is given judiciously, that is, only given when pain cannot be relieved by anything else, and when after a study of the patient you know for certain that he or she is really in pain.

The most difficult patients to deal with are those who have had morphia at their homes, ordered to be given regularly two or three times a day. When they come to the Cancer Wing they expect to have it in the same way, but they are soon "nursed" into better methods, and realize for themselves how much better they are with less, and in some cases without it altogether. It would be cruel, however, to withhold the use of so valuable a drug when one feels that its administration would be really useful.

There are cases who suffer so acutely that morphia has to be given even in large doses. I have a young woman of thirty, whose leg was amputated for sarcoma. She now has a recurrence in the opposite thigh. She is naturally most bright and cheerful, and when she is free from pain you could scarcely tell by looking at her face that she was so seriously affected. But she suffers periodic attacks of most excruciating pain, which sometimes last for days. During the attack I have to keep her almost narcotized, but as soon as it is over she becomes as bright and cheerful as ever, eats well, and is quite happy.

Sickness is a very trying complication in advanced cancer cases, more especially in uterine carcinoma; equally difficult is it to treat, and in the majority of cases nothing will stop it. Patients are often hurried to their end by the onset of this complication. Bismuth and morphia or hydrocyanic acid give relief in some cases, in others cocaine and oxalate of cerium in half or one grain pills half an hour before food. I have found tincture of iodine, one drop in half an ounce of water, of use in some cases. A liquid diet should always be given when sickness comes on.

Hæmorrhage is another frequent complication, especially in uterine cases, and sometimes is the direct cause of death. Mild attacks are usually stopped by hot or cold douching; more severe ones require some drug in addition. An infusion of matico leaves or a solution of perchloride of iron will generally meet the case; but if not, plugging the vagina with gauze will seldom fail to stop it. Repeated hæmorrhages soon tell on these patients; they seldom rally from them, and often die quite suddenly.

Some forms of uterine carcinoma tend to fungate and break down, and so lead to copious and most offensive discharges. These are the patients who get hectic temperatures, marked cachexia, and slow septic poisoning. These cases are much benefited by scraping away all the fungous mass and applying solid zinc chloride. The vagina is then douched and lightly plugged for twelve hours. Subsequent douching with Sanitas removes practically all fœtor. The operation may be repeated on the patient as often as necessary.

I have now operated in this way on several cases and been much struck with the improved general condition of the patients. The benefit is maintained for several months, during which time the appetite improves, temperature falls to normal, or nearly so, and general comfort and well-being are materially enhanced. The high temperatures which patients get during the course of cancer seem invariably to be due to sepsis. In the foul poisonous discharges which come from a carcinomatous uterus or breast, or from breaking-down glands in the neck, pathogenic organisms are of course found.

I have analyzed the notes and temperature charts of 800 cases of malignant disease, comprising carcinomata and sarcomata of various parts of the body, and the conclusion which I have drawn from them is that an intermittent temperature is invariably present in cases with ulceration and discharge. The cases of uterine carcinoma with foul discharges have the highest temperatures, and they are the ones which are so distinctly benefited by scraping and treating with zinc chloride. It has been stated that patients with lympho-sarcoma are prone to high temperatures, but the cases in my analysis do not bear out that statement. Patients with vaginal discharges require to be protected with some material which will absorb and deodorize the discharge.

The dieting of patients with inoperable cancer is a matter of some importance. As a rule it is best to avoid a rich stimulating diet, especially one rich in nitrogenous elements. From a physiological standpoint these patients naturally require a minimum amount, seeing that they are practically inactive, the majority of them keeping constantly to their beds. A stimulating nitrogenous diet, besides, might possibly increase the activity of the malignant growth. Plain, easily digested food is therefore best, with a very small amount of alcohol for those who care for it.

The value of alcohol in cases of cancer is a debatable one. I do not think that any one would advise large quantities of it for these patients. All our cases who care for it are allowed ale or stout with their dinner. I have often seen patients absolutely unable to take any food at all from loss of appetite still able to take and enjoy a glass of stout. Other cases prefer a little brandy, and I am distinctly of opinion that a little brandy is helpful to these people at certain periods of their disease. Some arrive at a stage when food is absolutely loathsome to them, and often a little brandy—say half an ounce in water—will give a little appetite, and enable them to enjoy a mouthful or two of food which otherwise would be impossible. Alcohol used in this way does them no harm, but on the contrary some good. Apart from these considerations, we know that the days of these unfortunate patients are limited to a few months, or a year or two at the most; why therefore should we deprive them of anything which can be a source of comfort or satisfaction to them? The medical man will be guided in the amount allowed by the temperament and general condition of the patient, in the same way that he considers the dosage of any other drug he uses.

The dieting of rectal cases has to be conducted on careful lines. These should not have coarse foods, which tend to produce much residual matter, for obvious reasons. The bowels should be duly regulated with mild aperients, and an occasional gentle wash out of the lower bowel with warm soap and water adds greatly to the patients' comfort. With these precautions cases of rectal carcinoma go for many months in comfort and freedom from obstruction, and indeed a great many die from the effects of visceral complications without any symptoms of obstruction; but on the other hand there are cases in which the growth tends to fungate within the lumen of the bowel and produces early obstruction. These cases, when the new growth is within reach, can be treated with advantage in the same way as the fungating uterine carcinomata, viz., by scraping with a sharp spoon, and the application of solid chloride of zinc. Months of comfort are thereby gained, with greatly improved general health, and the need for colotomy may be postponed. Apart from obstruction colotomy is needed in those cases of rectal carcinomata in which the growth, either from invading the external sphincter ani or growing through the anus, leads to incontinence. These patients are rendered very uncomfortable by the constant escape of flatus and liquid fæces; a successful colotomy prevents this, and prolongs the patients' well-being.

In offering a few remarks on the subject of colotomy, I am not going to compare either method as a surgical procedure, but shall confine my remarks solely to the after condition of the patient. Is the patient better off with a lumbar or inguinal colotomy from the point of view of being able to look after himself or herself? What is the opinion of the sister and nurses who have to look after them? I find that patients with inguinal colotomy are better able to keep themselves clean. When the bowels are acting regularly, and the motions are of normal consistency, they always know when to remove the dressing, and with a porringer at hand have no difficulty in avoiding contamination. They can see exactly what is occurring. On the other hand, with the artificial anus at the back, I find the patients cannot tell with the same certainty when to be on the look-out, with the result that motions are often passed into the dressings, with soiling of the patient's back. They cannot see what is occurring. They cannot use a porringer in the same way that patients with inguinal colotomy can. They cannot lie on their backs with the same comfort. It is true that the natural anus is not seen; but there is this great difference, one is natural the other artificial. The natural one, with its muscular and nervous apparatus intact, does not require the aid of sight; but the artificial one, with neither of these adjuncts present, is certainly aided by the sense of sight, and of this the patients always take advantage. The sister and nurses all tell me that they find it easier to manage patients with an artificial anus in the inguinal region than those with an anus in the lumbar region, and they believe that the patients are more comfortable with the former.

Vesico-uterine and vesico-vaginal fistulæ—the frequent complications of uterine cancer—do not as a rule give rise to as much personal discomfort as might be expected; as all the urine trickles out of the bladder as fast as it enters it, there seldom is any distressing cystitis.

Most of my remarks have been made more in reference to the treatment of female patients, as we admit four times the number of female to male patients in our Cancer Wards. This is due to the fact that the accommodation is so arranged. The general principles of treatment of male patients are much the same, viz., to relieve pain, check hæmorrhages, counteract fœtor—in fact do everything to make them as comfortable as possible.

From time to time rarer complications arise which require attention, although too often very little can be done. Cases sometimes suffer from marked respiratory obstruction, due to the pressure on the trachea of enlarged cervical glands, which may form a dense collar round the neck, rendering tracheotomy quite impossible. The administration of oxygen every four hours, or oftener if needed, gives much relief.

I now have a patient, a girl of 18, with a growth of the thyroid, presumably sarcoma or thyroid cancer, occupying the entire front of the neck, extending from the hyoid bone to the sternum. Her breathing is now greatly obstructed, but oxygen, given at very frequent intervals, always relieves her.

Septic rashes sometimes occur over the buttocks in carcinoma of the rectum and anus, and on the arms and chest in ulcerating mammary cancer. This causes much irritation, for which calamine lotion is as good a sedative application as any.

Now and again a case develops acute mania. These have to be isolated and constantly supervised. Patients do not live very long in this state, for they are quickly exhausted from their wild struggles and shrieking, and death quickly puts an end to the scene. Morphia has to be given when they are very noisy and restless.

In the late stages some patients get œdema of the legs in various degrees. A uniformly applied bandage from the toes upwards is appreciated by these patients. Some of the most distressing cases are those with the enormous œdematous arms which arise from pressure on the axillary vein and lymphatics in mammary cancer. The condition occurs oftener in cases which have never been operated upon. The limb becomes heavy and unwieldy and a source of much pain. The entire removal of the limb has been carried out by Berger's method and has given satisfactory results. I have not myself seen the operation performed for this condition, nor have I seen any cases in which it had been done. Short of this, one can only support the limb in the most comfortable position for the patient, and relieve pain by the various methods indicated above.

One might go on almost indefinitely enumerating the various ills to which these patients are liable. I think that I have indicated the commoner symptoms and the complications which have to be treated, and I do not think that I have overlooked any condition in which something could be done for the patient's comfort. As we watch these patients day by day and view their afflictions both great and small, the spell of hopelessness is sometimes broken by the cheerfulness of some isolated patient—a cheerfulness which sends its light like a ray of sunshine into the surrounding gloom, and makes us feel that our treatment, though not "a cure," is yet not altogether in vain.

HEREDITY IN CANCER.

By W. T. HILLIER and I. TRITSCH.

I.—Introduction.

In collecting cases from the cancer records dating from 1856 to 1902 for the purpose of investigating the occurrence of heredity in cancer patients, we have had a historical interest in continuing research which had practically originated in the Middlesex Hospital, but we have also obtained data which deal with other questions besides heredity, such as age incidence. This Paper is to be regarded as preliminary, and gives no conclusions; but the opinions expressed by Professor Karl Pearson in the Paper following this are based on figures from this investigation.

The simultaneous occurrence of tuberculosis was noted in order to elucidate its numerical relationship to the cancer incidence in the family of cancer patients, and to enable a conclusion to be arrived at as to how far, if at all, a causal connection between the two diseases can be established. No more than allusions to the literature of this subject is given here.

Without going into the question at present as to whether heredity plays any rôle in the causation of cancer, we consider it advisable to state that generally we agree with former workers on this subject, who consider that not only those characters which have been inherited by parents from ancestors may be transmitted to the children, but also those variations which have been acquired during the lifetime of the parents; and further, that any structure which has once varied in a particular way is henceforth liable to take on this variation again; and therefore if cancer were merely a morphological variation of the tissues it can be regarded as a variation under this law.

If cancer as such were inherited, one would expect to find it also in a congenital and infantile form, or at least that it would appear in quite young people. But the inheritance of a tendency to disease is not the same thing as the inheritance of the disease itself, and so the fact that the children of parents suffering from cancer are often attacked at a similar age to that of their parents is explicable. The hereditary factor in cancer, therefore, resolves itself into the inheritance of a predisposition to cancerous disease.

Now the inheritance of a predisposition has been recently denied on the authority of Weismann's theory. Taking tuberculosis for example, it was said that it was not the predisposition to the disease, but the tubercle bacillus itself which was handed down. The predisposition could only according to this theory reside in somatic cells, not in germ cells, and hence the latter could not transmit it.

It seems as probable to us that in a condition like chronic tuberculosis the effects might weaken the germ cells along the same lines as they weaken the general tissues of the body; and as the resistance of the body in general to a special micro-organism and its products becomes less and less, so also that of the germ cells becomes the same, and thus from parental disease the offspring inherits a peculiar susceptibility to one special disease.

In the case of cancer, leaving out of consideration any theory as to its origin apart from heredity, its influence on the germ cells might in a similar way be imagined, even if its external manifestation in the parent organism had not yet developed or was remaining there in a latent state.

The question of heredity of cancer in animals should undoubtedly receive attention, and as they usually propagate their species at relatively short intervals the investigation would be less difficult than with man.

When one comes to the question of the relation of tuberculosis and cancer to one another, one finds in the normal processes help and guidance in consideration of the abnormal. The meaning of Cuvier's law of correlation is that unity of nutrition exists among all the parts of every living organism, so that changes of nutrition affecting an individual part necessarily react on other parts.

Leaving these general considerations we would lay special stress on the fact that our cases are, so far as we can judge, undoubted cases of carcinoma, verified partly by post-mortem examination and partly by microscopic examination. As the cases were submitted to the scrutiny of two workers, the personal equation can be considered an element of correction. In all our cases complete notes were taken as far as possible regarding the occurrence of cancer in the members of the same family. The difficulty in considering the cases of hospital patients, belonging as they do to the poorer classes, is that they are very often through external circumstances removed from immediate contact with their parents at an early age, and are absolutely ignorant about previous disease occurring in their families, and thus the real percentage must be considerably above the percentage obtained.

II.—Historical Review of Opinions held as to Heredity in Malignant Disease.

The opinions given on this subject of heredity in cancer may be generally brought into three categories, although no hard and fast lines can be drawn.

There are, firstly, authors who are convinced of the importance of inheritance in cancer; secondly, those who, although recognizing inheritance as a factor in the etiology of cancer, do not consider it worth much attention; thirdly are the writers who do not believe that inheritance plays any part in the occurrence of cancer. We intend to quote their views according to this threefold classification.

On looking back on the older statistics on heredity in cancer we are faced by the difficulty as to whether cases recorded were really carcinoma or were sarcoma. Care has, therefore, been taken to quote only from those authors who were aware of the pathological distinction. When we come to more recent years, where the differences in the various forms of malignant disease are generally recognized, this difficulty is abolished, and the figures and opinions given can be accepted without any such restrictions.

One of the first to draw attention to the comparative frequency of inheritance of predisposition to cancer was Sir James Paget, through whose brilliant observation and most acute pathological skill this question was brought into prominence.

As far back as 1857 Paget (26) published an account of the cancer incidence in the families of 411 patients, and found that 254 cancer patients shewed 23·6 per cent. inheritance of cancer and other tumour, that 147 patients with non-cancerous and non-recurrent tumours had 18·3 per cent. of cancer and other tumours amongst their relatives, while in 10 patients of non-cancerous but recurrent tumours he found 60 per cent. had carcinoma in their family.

From the above-mentioned 60 families (representing 23·6 per cent. of the 254 cancer patients), not less than 57 had other members diseased with cancer, whereas from the 27 families (18·3 per cent. of 147 patients) with non-recurrent and non-cancerous tumours there were only 12 who had relatives with tumours like their own. The comparison of the respective probability of hereditary transmission would therefore be as 22·4 per cent. for the cancerous to 8·2 per cent. for the non-cancerous.

Velpeau (31), in his book written in 1858, said: "More than a third of my cancer patients had a cancer history in their families. I have seen a family in which the mother died of cancer of the breast, her three daughters were all attacked with the same disease in the same place between the ages of thirty and forty years." "But how," he continued, "does the hereditary nature of the disease become established?" On this subject we are entirely ignorant, and there is nothing at first sight to shew whether there will or will not be any manifestation of the disease in the descendants of those who are unfortunately affected with it.

Lebert (19) in 1851 gave the percentage of inheritance in cancer as 8·3.

In 1862 Baker (3) published, under the direction of Paget, a contribution to the statistics of cancer, comprising 500 cancer patients. The cases were all recorded by Sir James Paget, and were partly his hospital patients and partly his private ones, in the proportion of 2 to 3. They were diagnosed by him, and the growth removed and microscopically examined. From

322 cases it was possible to obtain an account of their families, and 78, *i.e.*, 24·2 per cent., had cancerous relatives.

Sibley (28) in 1859 recorded 520 cases, 305 of which were able to give information as regards their families. In 34 instances, *i.e.*, 8·75 per cent., cancer could be traced in relatives. The distribution was as follows :—

	Males.	Females.	Total.
No. of cases	42	263	305
Cancer traced in	4	30	34

The hereditary taint in question was arranged as follows :—

On the father's side	7
On the mother's side	19
On both sides	1
Not noted	5
Total	32

Warren (32) gave as early as 1837 an account of a remarkable case where the grandfather died of cancer of the lip, the son had cancer of the breast, his two sisters cancer of the breast, a daughter of one of them cancer of the breast, and the daughter of the son cancer of the breast.

Virchow, in his famous work "Die krankhaften Geschwülste," 1863, says: "In carcinoma there is undoubtedly a predisposition; that which is inherited is a predisposition, not the disease itself, for if the disease itself were inherited then one should expect its appearance in the descendant much earlier."

Cooke's (8) experience (1865) in his patients points, according to his statement, to an hereditary incidence of 1 in 4, just as Paget's cases.

A most extraordinary family history is given by Broca (6) in 1866 relating to the family of a physician whom he knew. A lady died of cancer of the breast; her four daughters died also of cancer, two of cancer of the liver, and two of cancer of the breast. This was the second generation. One of the daughters had three unmarried daughters; a second had five daughters and two sons, and one of the sons died from cancer of the stomach; a third daughter also had five daughters and two sons. Of these, all five daughters died of cancer: three of cancer of the breast, one of cancer of the uterus, and one of cancer of the liver. In the fourth generation one daughter died of cancer. It would have been exceedingly interesting to have had more detailed notes as to the customs, food, peculiarities, etc., of this remarkable family, and as to whether the members had much social intercourse.

In a memorable discussion on cancer before the Pathological Society of London in March 1874, the question of heredity played a prominent part and gave rise to a thorough (exhaustive) discussion. De Morgan ([25]) considered heredity as one of the reasons for not regarding carcinoma as a mere local disease. He contended that carcinoma is more often inherited than was generally acknowledged. He found sufficient proof for it to allow one to reckon this as one of its causal factors. Moreover, in a great number of cases, although no proof can be found of the existence of disease in a progenitor, it can be traced in collaterals, so it seemed to him reasonable to conclude that in such instances, although the common parent might not have lived long enough to develop the disease, it was present potentially. Nor is it contrary to reason to conclude that the constitutional predisposition, whatever that may be, is often present without the disease becoming developed. This must be the case where a disease or peculiarity has skipped one or more generations. The peculiarity of the grandfather may reappear in the grandson though not in the father, yet the transmission must come through the father.

Paget ([26]), who took a most active part in the discussion of cancer, attached the utmost importance to heredity. In his opinion every fourth cancer patient was able to give a record of the disease in his family. He even goes so far as to say that it is not possible to conceive of the origin of cancer except by inheritance. Referring to Mr. Baker's ([3]) paper, he asserts that cancer is quite specific in the manner of inheritance. The ordinary non-cancerous tumours appear in the offspring in the same place as a rule, but in cancer this is not so. In Baker's paper half the cancer cases which passed from the progenitor to the offspring affected the same organ, in this case affecting almost exclusively the uterus and the breast. In the other half, which are the more characteristic in this respect, there is no rule, and as a corroboration of this he gives a striking instance: A lady died of cancer of the stomach, also one of her daughters; another daughter died with cancer of the breast;

and of her grandchildren, two died of cancer of the breast, two of cancer of the uterus, one of cancer of the bladder, one of cancer of the axillary glands, one of cancer of the stomach, and one of cancer of the rectum. In this particular way of transmission Paget finds a great similarity to the hereditary transmission of gout and tuberculosis. He says: "The gout of the parent may appear in all the various organs of the offspring; never, it may be, in the great toe of one of them, but in the joint of one, in the skin of another, in the bronchial tubes of a third, and in the pulmonary tissues of another."

Extensive statistical work on cancer regarding inheritance has been done by Roger Williams (33). In the first series of his investigations, in 1892, he reported 136 cases of carcinoma of the breast with an inherited proportion of 29·2 per cent. He records 48 cases in 33 families: 19 of cancer of the breast, 6 internal, 4 uterine, 2 hepatic, 2 of œsophageal, and of all others 15. In eight cases more than one relation was affected; in four cases there was a history of carcinoma in the families of both father and mother. He found a multiple history in successive generations in 6 per cent., a direct inheritance in 8 per cent.

He refers to Broca's remarkable case, and compares it with the cancer mortality for the same number of people belonging to the general population at the corresponding periods of life. The proportion is as 15 to 1, and he concludes that the heredity increased the predisposition 15 times.

Again, in comparing the proportion of cases with family history of cancer among the cancerous and the non-cancerous, he finds in 94 non-cancerous patients a family history of cancer in 14 per cent., against 27·2 in the cancerous; thus the liability is increased by 10 per cent. He relates the family history of Napoleon, whose father, brother Lucien, and two sisters all died of cancer of the stomach, to which also Napoleon himself finally fell a victim. Roger Williams characterizes the tendency to cancerous disease as undergoing a gradual evolution until it becomes effective.

Graf (16) in 1895 cites Lichtenstern's collection of statistics in Ziemssen's hand-book from various authors with an inheritance factor of 17 per cent. in 1137 cases. He relates the case of a lady aged 81 years who died of cancer of the hand; her brother died of cancer of the nose, her daughter also, and her grand-daughter of cancer of the breast.

Esmarch ([13]), writing in 1889 on the ætiology of cancer, observes that we learn nothing from statistics about the cause which gives to an irritated place a malignant character. For this cause we have so far been looking in vain. The old doctrine of dyscrasia has been disproved by Virchow, who put in its place the predisposition and tendency, which consist of a certain weakness of tissue. All search for the last cause of the tumour formation till now fell back to the assumption of Virchow that one had to do with a weakness, a diminution of the physiological ability of resistance; but as in most cases the cause of this weakness could not be found out, one had to assume a hereditary predisposition without being able to prove it in all cases. Esmarch regrets that in the records of the family history of the cancer patients we do not gain any definite knowledge of the malignant disease in ancestors further back than father or mother, and even in that case the information is very indefinite. He advises, therefore, the use of authentically kept family histories in order to gain a definite knowledge of hereditary cancer. He mentions as a well-known fact that as family features are inherited in families through many generations, and not only from father to son, but may appear quite suddenly after the lapse of several generations, so may certain properties of disease be handed down. The tendency to certain diseases—gout, rickets, hæmophilia, cataract, skin diseases, eczema, ichthyosis, xeroderma, and before all, nervous and psychical diseases—are inherited through many generations, and very often after intervening generations were free from them.

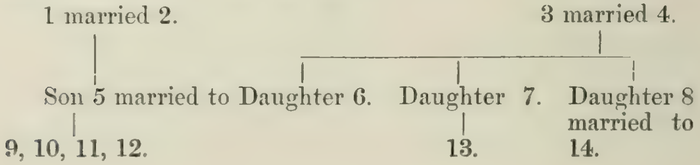
In connection with the question of heredity, Esmarch's hypothesis on the origin of sarcoma and carcinoma may be mentioned briefly. According to Esmarch, malignant disease—both connective tissue and epithelial growth—is attributable to a predisposition inherited from syphilitic forefathers. Syphilis leads to epithelial growths—condylomata, plaques, "psoriasis," leukoplakia; growths of the superficial epidermal layers are in a high degree heritable. In such a way the tendency to growth of an epithelial nature could, therefore, be supposed. In a similar way as syphilis most generally produces growth of a connective-tissue type, and often after a long latency, one might, in some cases in which neither an infection nor an inheritance on the part of the parents can be proved, go back to former generations in order to explain the predisposition to sarcoma.

For a long time syphilis has prevailed as a disease of the people. At the beginning of this century only, all its manifestations were called syphiloids, meaning thereby an acquired or inherited syphilis. It was treated with antisyphilitic remedies and so lost its endemic character. As one cannot assume that all the diseased families went through a proper course of treatment, a tendency to the origin of connective-tissue tumours must have been left in many.

Esmarch's theory seems to us a more plausible explanation of sarcomatous than epithelial growths, for how could it explain the great prevalence of uterine cancer if one considers that syphilis rarely attacks the uterus, and gummata of the uterus are rare. Furthermore, syphilitic inheritance is either apparent at birth or in early life, whereas cancer is the scourge of middle life or later. Carcinoma does not react to antisyphilitic treatment, although patients suffering from sarcoma may sometimes gain benefit from the administration of potassium iodide.

According to Israel (18) the disposition to carcinoma does not shew hereditary predilection for similar organs, but is a general one in the so-called cancer families. The occurrence of cancer in a family in certain organs of predilection or in consequence of acquired chronic disturbances is the rule. In this way it can be explained why only a small area in predisposed individuals becomes diseased; because, for the occurrence of neoplasms, two things are necessary; the cells inclining to variation and the internal or external noxious factor which acts on them, and these two conditions are not always present together.

Professor Van Iterson (17) mentions the following case of two families related to one another:—



1. Died of malignant disease of neck.
2. Cause unknown.
3. Cause unknown; age over 89 years.
4. + Chronic disease of rectum.
5. + Cancer of bladder and rectum.
6. Cancer of liver.
7. Paralysis of heart.
8. Cancer of breast.
9. Hard tumour of breast.
10. Cancer of bladder.
11. Op. Cancer of breast.
12. Op. Cancer of breast.
13. + Cancer of œsophagus.
14. + Cancer of breast.

Professor Van Iterson heard of this remarkable family from one of its members, a physician.

Winiwarter ([31]) (1878), of the surgical clinic of Professor Billroth, found that most of the cancer cases in the parents of cancerous children occurred long after the children were born, and he asks, "What becomes of the children who are born of cancerous parents?" On that point records are wanting, and only the family physician would be in a position to collect data in this direction. As long as the mother is healthy only that predisposition to cancer can be given to the child which one assumes without being able to define, but if a child be born whose mother is suffering from cancer of the breast it is conceivable that later on cancerous disease may develop. Winiwarter's cases shew an inheritance of 8·8 per cent., and he therefore concludes that the predisposition to cancer is only in a small number inherited. In his opinion the best proof against inheritance having any relation to cancerous disease would be to shew a case of an individual with active carcinoma who produced healthy children who remained so as regards freedom from cancer.

Billroth ([4]) in 1880 expressed the opinion that the disposition to tumours is congenital; in other words, we are to assume a congenital diathesis for tumour formation as we have already done in the case of tuberculosis. In this hypothesis all events that are irritants of any kind can retain their full significance as occasional causes. Of course, when he says the diathesis is congenital, he does not mean thereby that it is also inherited; but as congenital qualities may also be inherited (as one sees clearly in the tuberculous diathesis), one may assume the same to be possible with cancer. He mentions 170 cases, among whom in 10 cases the father or mother was affected, a percentage of 5·8. Regarding other relatives Billroth evidently could get no other information, and that may explain the low figure.

Professor Tillmann (36) (1895) believes in the heredity of a predisposition to carcinoma. He is only uncertain whether the proportion of inherited cases is little or much, and hesitates to give an opinion on its frequency. He quotes Bräntigam with 8·5 per cent. of inheritance in a certain number of cases of carcinoma ventriculi, Pfeiffer with 9·3 per cent. among persons insured in the Insurance Company at Gotha, and Häberlin 10·2 per cent. in carcinoma ventriculi.

Hans Ziel (37) collected 200 cases with 11 per cent. of cancer inheritance in 1892.

Percy Dunn (12) says that even if the increase of cancer can be attributed in some measure to heredity, it does not appear that at the period of life when presumably this influence would be most apparent there is any trace of increase; therefore, one may conclude that either the heredity of carcinoma fulfils a very subordinate position in the immediate production of the disease, or that it only becomes manifest under special predisposing circumstances, the accumulation of which increases proportionately with the advance of age. He does not allow much importance, therefore, to be attached to an inheritance. He says that the predisposition to cancer being racial in its nature and not individual, the primary origin of the disease in the large majority of persons who suffer from carcinoma, amongst whom no family history of cancer can be traced, may in this way be explained.

Dietrich (11) (1902) says that if one follows Cohnheim's theory of the origin of carcinoma, the heredity of carcinoma consists in the inheritance of pathological germ variation, but not of acquired variation in the parent organism. This is consistent with Weismann's theory; but since Cohnheim's theory cannot be accepted as accounting for the cause of cancer—for the question of parasites originating cancer is still *sub judice*—it is useless to discuss whether a predisposition of the body or the tissues is needed in order to grow the parasites, or whether that predisposition consists of an heritable constitutional factor, true germ variation, or of the transmission of an acquired disposition.

The views which have been given up till now may be regarded as either actually in favour of recognizing a hereditary causal factor or at least not opposed to it. The opinions now to be given are adverse ones.

In 1865 Moore (21) discussed the importance of heredity in cancerous disease without giving any figures. He argued against it on the ground of its comparative rarity, and especially because of the rarity of congenital and infantile cancer. Moore evidently reckoned the inheritance of the disease, and not that of a tendency to the disease. In many other diseases of which the frequent inheritance is undoubted (gout, tuberculosis) the time of appearance of it in the offspring, although in most cases earlier, nevertheless corresponds pretty closely with the period at which it shewed itself in the parent.

In 1878 Harrison Cripps (9) found, as the result of his investigation into the heredity of cancer, that of 169 cases 11 cases had similarly affected fathers or mothers, *i.e.*, 6·4 per cent.

The reason why the percentage is so low explains itself by the adoption of Mr. Cripps' method of excluding aunts, uncles, cousins, great-aunts, and great-uncles, as according to his idea it is impossible to conceive how a man can inherit cancer from any so distant a relation. As a further test he compared the death-rate from cancer in the parents of cancerous patients with the death-rate from cancer amongst adults generally. In the years 1861 to 1870 in England and Wales

1,185,189 men died above the age of 20 years
1,194,433 women ,, ,, ,,
24,845 men died of cancer
56,854 women ,, ,,

Therefore 81,699 deaths occurred from cancer out of 2,379,622, or a proportion of 1 in every 29·1. He compared these figures with the figures of his investigations and Sir James Paget's figures thus: 1. According to Sir James Paget 1 in 24·8; 2. According to St. Bartholomew's Hospital Register 1 in 28; 3. Among the whole community over 20 years of age 1 in 29. He came to the conclusion that cancer in the parent in no way increases the liability of the offspring to the same disease.

(Roger Williams challenged these figures and conclusions thus: According to Cripps the question is, Does the proportion of cancerous parents of the cancerous exceed that of the non-cancerous? It seemed to Williams that a more correct statement of the question would be, Does the proportion of cancerous relatives of the cancerous exceed the proportion of the cancerous to the non-cancerous in the whole community? and he fails to find in Cripps' paper the requisite data for the solution of this question.)

Snow (29), in 1885, mentions 519 patients with cancer of the breast giving a family history in 94 cases, 295 with cancer of the uterus having a history in 37 cases, 204 epithelial carcinomatous patients having a history in 31 cases; that is to say, among 1018 cases a percentage of 15. He collected for comparison's sake 175 cases from the Dental Hospital, which were treated for dental sinuses, enlarged glands, etc., and found a cancer incidence of 26 per cent. in their families. He therefore declares his opinion against the inheritance of cancerous disease, and attributes the disease to chance or infection.

Brand (5) (1902) reasons that the occurrence of cancer in several members of a family, whose parents have succumbed to it, cannot be accepted as evidence of heredity, but it can and ought to be accepted as evidence of infection from an obvious source.

III.—Review of Opinions held as to Relationship of Tuberculosis and Malignant Disease.

The concurrence of tuberculosis and carcinoma in the same individual has received more attention than its prevalence in the family of cancer patients, either in a direct or collateral line.

When we quote George Leuchs's (20) historical review we are supported in this statement, and it is not surprising, since in the search for the simultaneous occurrence of tuberculosis and cancer in an individual one has more definite facts at one's disposal than in seeking for correlation or interchangeability between the two diseases.

George Leuchs has reviewed the most important opinions which were and are held regarding tuberculosis and carcinoma.

Rokitansky, in 1838, held that cancer and tuberculosis do not occur simultaneously in the acute state. If they be present then cancer has followed tuberculosis, and the latter is in a retrogressive state or its progress is checked by the development of cancer.

Lebert (19) in 1851, and Ditrich Martius (23) in 1852, held that cancer and tuberculosis do occur in the same individual and in full development, but it cannot be positively stated that an acute tuberculosis can precede carcinoma. As a rule the cancer appears before the tuberculosis, and thereby favours its occurrence by disturbing the nutrition of the entire organism.

According to Friedreich (14), who wrote in 1866, and Wagner and Simmond in 1880, cancer and tuberculosis even occur in the same organ simultaneously. Cohen (7) (1885) believes tuberculosis can arise before the occurrence of cancer, and Lubarsch (22) (1888) that tuberculosis can favour the development of cancer, because local tubercular lesions create a predisposition to carcinoma.

Zenker (36) in 1890, and Clement, writing in 1895, state that cancer can favour the origin of tuberculosis, inasmuch as the cancerous ulcer allows entrance of the tubercle bacillus.

Ribbert (27), in 1894, affirms that tubercular tissues can be found in the middle of cancer tissue. He also states that tuberculosis may cause cancer in so far as it causes abnormal growth of sub-epithelial connective tissue, which is of first importance in the origin of cancer. Again, he states that carcinoma may favour the development of tuberculosis, because the tubercle bacillus can develop in cancerous tissue as a "locus minoris resistentiæ."

In this difference of opinions the questions of hereditary predisposition and of the possibility of its transmutation are entirely omitted.

Sibley (28) inquired in 130 cases whether phthisis were present or not in the family history. In 48 cases the question was answered in the affirmative. Out of these 48 cases 43 were women and 5 were men. In 20 cases more than one relative was affected, and in some cases as many as six were. The relations suffering from phthisis in these cases were: Father or mother 12 times (both in 2 cases), brothers or sisters 27 (in 11 cases more than one brother or sister were consumptive), grandfather and grandmother 2, children 7: in all 48. Only pulmonary tuberculosis was included. Sibley arrived at the conclusion from these figures that both diatheses may exist in the same family, and that the one may be a modification of the other.

The relationship between cancer and tubercle also attracted Moore's (24) attention, and he did not think it inconceivable that there might be a connection between the two, but, he added, not as cause and effect. He observed that in some families consumption was a kind of alternative of cancer, proving fatal to those members of the family who did not die of the latter disease. He did not consider that there was much resemblance between the antecedent conditions of those who are liable to the two diseases, and suggested that it might be an accidental coincidence considering the great prevalence of phthisis.

Cooke (8), in his essay on cancer in 1865, differs from Moore as regards the two above-mentioned diseases. The cancerous and tuberculous diatheses are in his opinion interchangeable, so that the cancerous parent may beget tuberculous offspring, and the tuberculous parent beget cancerous offspring; and further, some of the children may be tuberculous and others of the same family cancerous. He does not attribute much importance to the simultaneous occurrence of carcinoma and tuberculosis, because such a coincidence might be fairly put down to the accidental grafting of the one disease upon the other; but these cases are very rare. It is only in connection with the hereditary disposition to either of these diseases that their coexistence in the same person is notable. Cooke collected 79 cases of cancer of the breast. Of these he says 18 inherited cancer from their relatives, 27 phthisis, and 3 had both phthisis and cancer in their relatives; 31 had neither cancer nor phthisis.

Roger Williams (33) in 1885, dealing with the subject of correlation between carcinoma and tuberculosis, collected the records of cancer cases in The Middlesex Hospital and separated them into the following groups:—

1. As to family history—
    (*a*) 134 families in which breast cancer occurred had one or more adult members dead or diseased from phthisis in 74 = 52·2 per cent.
    (*b*) 129 families in which uterine cancer occurred had a record of phthisis in a similar way in 60 = 46·5 per cent.
    (*c*) 53 families of cases of cancer of tongue and mouth had a record of phthisis in this way in 17 = 32 per cent.

In all 316 cancer families there was a history of phthisis in 151, a percentage of 47·7.

40·9 per cent. of the fathers of patients with cancer of the breast were phthisical, 33·9 per cent. of the mothers. In cases of uterine cancer 40 per cent. of the fathers were phthisical and 30·3 per cent. of the mothers.

In 88 families of patients with cancer of the breast one or more of the brothers or sisters was dead of tuberculosis in 40, in the case of 81 families of uterine cancer cases 41, and in 52 of the tongue and mouth 14.

2. As to necropsies—

Forty-four necropsies on cases of cancer of the breast shewed old arrested phthisical lesions in 4, and in 2 cases phthisis was in active progress. Eighty-eight necropsies on cases of uterine cancer shewed such lesions in 12, and 34 on mouth and tongue cases in 5. Therefore, in 166 necropsies cancer and phthisis were associated in 27 cases, or 16·2 per cent. These figures certainly overthrow Rokitansky's statement as to the incompatibility of phthisis and cancer.

Wolf (35) (1894) found as the result of his investigations that about 10 per cent. of cancerous parents have tuberculous children.

Aronsohn (1) in 1902, in his paper, opposes the idea that infection by the tubercle bacillus alone is sufficient to give rise to phthisis! (and asserts that tuberculosis is gaining more ground), and further, that the hereditary predisposition is the real beginning of the disease—"Que le terraine est tout et que le microbe n'est rien."

Croner (10) found 22·7 per cent. cases of phthisis in families of cancer patients, 13·9 per cent. cancer in the family histories of phthisical patients. Out of 252 persons who died of either phthisis or cancer there was a percentage of 19·7 of phthisis and 5·3 of cancer.

An interesting collection numbering 126 of undoubted cases of lupus with carcinoma supervening was published by Ashihara (2) in 1901. Although he was too cautious himself to put any definite interpretation on these figures as to the correlation between cancer and tuberculosis, we find Aronsohn using this collection to construct the theory that the tubercle bacillus might change its biological properties and eventually give rise to carcinoma. He mentions 20 cases where either the father or mother of tubercular children were afflicted with cancer, but he gives no record of what percentage these form of the number of cases investigated. Aronsohn believes that if cancer patients have tubercular children a general predisposition for the reception of microbes is not only inherited, but that there is a great probability that a congenital infection can take place. For these reasons it seems to him probable that the phthisical diathesis can not only be transmitted from phthisical, but also from carcinomatous patients to their descendants, and that cancer, lupus, and tuberculosis belong etiologically to one family.

At the Tuberculosis Congress held in London in 1902, Foulerton ([15]) gave the number of those shewing evidences on post-mortem examination of tuberculous lesions of the lungs—37, or 28·9 per cent. out of 128 cancer patients in the Middlesex Hospital; while among 162 cases not of cancer, on whom post-mortem examinations were made, the number shewing evidence of tuberculous infection of the lungs was 32, *i.e.*, 19·7 per cent.

The records of the Insurance Company in Berlin shewed, that among the men who came to Gütergotz in the year 1899-1900, a family history of the same disease occurred in the case of respiratory diseases of a tuberculous nature in 18 per cent., in the case of nervous diseases in 16 per cent., in the case of "rheumatic gout" in 5 per cent., and in the case of cancer 15 per cent.

IV.—The Present Investigation.

Having now dealt with the literature alluding to heredity in cancer and to the association of cancer with tuberculosis, we pass on to compare our figures with those of the "Deutsches Krebs Kommite," and then intend to point out the chief difficulties in our investigation, leaving the interpretation of the figures entirely to Professor Karl Pearson. For deductions to be drawn from these figures obtained we gladly refer to the Paper following this one, in which Professor Karl Pearson, F.R.S., has given his report on these figures. We desire to thank him most sincerely for his valuable help, and we give merely such details as to how we obtained our data, that an estimate of their value may be made.

In order to compare our figures with others, which have been published, a table has been drawn out on the plan proposed by Professor v. Leyden ([21]) in the Report of the Committee for Cancer Research in Berlin, and the two sets of figures placed one above the other for comparison's sake. It has been necessary, however, to insert another column for those cases in which the site of the growth in the affected relation has not been given.*

	Male.			Female.			Male and Female together.		
	Altogether.	Same Organ.	Organ not stated.	Altogether.	Same Organ.	Organ not stated.	Altogether.	Same Organ.	Organ not stated.
Mother	19 *147*	*61*	5	100 *413*	46 *159*	15	119 *560*	46 *220*	20
Father	4 *159*	1 *86*		29 *179*	2 *40*	7	33 *338*	3 *146*	7
Sisters and Brothers ..	14 *172*	1 *64*	7	99 *273*	38 *125*	15	113 *445*	39 *189*	22
Grandparents	4 *23*	1 *7*		56 *51*	15 *12*	14	60 *74*	16 *19*	14
Other relations ..	8 *36*	1 *11*	3	123 *92*	38 *34*	26	131 *128*	39	29 *45*
Sum of heredity ..	50	4	16	408	140	77	458	144	83
Relations not given ..	*4*	*1*		*14*	*2*		*18*	*3*	
Sum of heredity ..	*541*	*230*		*1022*	*372*		*1563*	*602*	
No heredity	567 *1046*			1975 *1986*			2542 *3032*		
Total cases	617 *4454*			2383 *7725*			3000 *12,179*		
Heredity affirmed or denied	*3408*			*5739*			*9147*		

All of the 3000 cases for this Paper were only cases whose family history was analyzed, so that this number and its components which are put in the line "Total cases," really correspond with the German figures in the line "Heredity affirmed or denied."

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* The German figures are in *italics*.

A comparison of great interest is that of the occurrence of a family history of cancer among 500 female cancer (breast) cases with that among 500 male cancer (tongue, penis, stomach, etc.) cases. The number of the former is 14·6 per cent.; the number of the latter is 7·8 per cent.

Taking the two subjects, (i) Age Incidence Frequencies, and (ii) Family Cancer, we deal with each separately.

Three thousand cases of cancer in all were analyzed. Of these 2368 were women, 632 were men; and the two sexes have to be dealt with separately for the purpose of age incidence. At the outset it should be carefully noted that the figures were obtained only from cases of carcinoma as far as it was possible to determine.

The high proportion of women to men in our figures is dependent on several causes, but the two chief are:—

(*a*) The greater proportion of female cancer patients treated in the special wards of this Hospital as compared with male cancer patients.

(*b*) The great liability of the uterus and breast to carcinoma; and the fact that the majority of cases of the latter kind at least being "operable," induces women more readily to seek for surgical treatment than men.

The ages of all patients admitted were asked and recorded as a matter of routine, but we have no guarantee that a correct answer was always given, though on the other hand there is no reason to suppose the contrary. The ages, however, which we supplied to Professor Pearson, were not those of the patients at the time of admission, but at the time of onset of the disease. This, of course, introduces another source of error, besides those due to incorrect knowledge by the patient or incorrect record by the surgeon. On the other hand it eliminates the much more serious error arising from the variable duration of the disease.

The time of onset was reckoned as being the time of the first appearance of any definite symptoms or physical signs pointing to the presence of carcinoma, and was obtained from the clinical notes of the cases. This involved the exercise of judgment on our part, but cases of difficulty were very few.

It will be seen then, that, what is shewn by our age incidences, is the time when cancer first becomes apparent. It is much more difficult to obtain satisfactory data concerning family cancer.

It has been the rule at the Middlesex Hospital to make enquiries of all those patients admitted on account of malignant new growth, as to whether there is any history of cancer or phthisis in the family. These two questions were printed on the special form of case-paper which was used for all cases of malignant disease, thus: "Cancer traced in——" "Phthisis traced in——." The answers, either negative or affirmative, were taken by us as conclusive and satisfactory. In the case of an affirmative answer being given, there is usually a record of relatives affected by the disease.

When, however, we endeavoured to obtain such data from cases other than those of malignant disease, there was rarely any evidence to shew that these two questions were put, so that we had to select only those cases which gave a family history we considered sufficient. This doubtless introduces a very large factor of personal equation, because we had to take into consideration the age of the relations and the interpretation of such loose terms as "tumour."

The non-malignant cases which we analyzed were therefore comparatively speaking very few, a great number of histories being too incomplete to accept.

Another and a very important reason for our obtaining so few non-malignant cases was that we attempted to get them in corresponding proportions, in each age period of five years, to those in similar age periods among the cancer cases.

It will be seen that special attention was given to the consideration of each class of notes, and if no other disturbing factors occurred, comparisons based on them would probably be quite reliable. To what extent the disturbing factors to be mentioned render the comparisons unreliable, we must leave others to judge after we have put forward the facts.

Errors may arise in connection with the accounts given (1) by the patients themselves, or (2) by those who took the notes, or (3) may be due to us, or (4) to circumstance.

(1) Undoubtedly many family histories are incomplete through lack of knowledge on the part of the patients supplying them as regards the fate of the various members—misconcep-

tions or ignorance as to causes of death, ignorance of the whereabouts of relations; or some relations living at the time that the history was taken subsequently became the subjects of carcinoma. Deliberately false statements have been, we think, very few; if any occur they probably result from the fear of allowing the existence of cancer in the family. A family history of cancer was noted, if any one or more of the following relations were affected: father, father's parents, father's brothers and sisters, mother, mother's parents, mother's brothers and sisters, brother, sister.

(2) The number of persons who have assisted in compiling the Hospital Records is very large. Each writer has necessarily introduced with himself a possible source of error, and this, though often but small in cancerous cases, may be considerable in non-cancerous cases.

(3) With regard to errors due to ourselves, statements have already been made as to when and how we exercise our own judgment in interpreting records. We may, however, add that, in case our views as regards hereditary predisposition to cancer be held to be biassed, our preconceived opinions were diametrically opposite; hence throughout the investigation a fairly even balance has probably been maintained.

(4) Finally, chance circumstances may modify our data. The class of patient admitted is very much the same throughout the Hospital. For admission to the Cancer Wards special forms of application are used, one object of this being to procure reliable history of the case to make sure that it is one of cancer.

A large proportion of our cancer cases came from these wards, so that the figures are probably on that account accurate.

So far as possible recurrent cases have been excluded, but it is manifestly improbable that this source of error has not to some extent crept in, when we remember that surnames of females are altered by marriage.

In spite of all these possible sources of error, we firmly believe that the data which we furnished to Professor Pearson are reliable.

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REPORT

ON

CERTAIN CANCER STATISTICS OF MESSRS. W. T. HILLIER AND I. TRITSCH, OF THE CANCER RESEARCH LABORATORIES, MIDDLESEX HOSPITAL.

By KARL PEARSON, F.R.S.

These statistics were of three kinds: (1) *Age Incidence Frequencies*, (2) *Family Cancer*, (3) *Tuberculosis and Cancer*. I propose to consider these matters separately, as I think the corresponding data belong to rather distinct classes. The first set of statistics seems to me to lead to quite definite and valuable results, the two last to be extremely suggestive but not absolutely conclusive.

(1) *Age Incidence Frequencies.*

In this matter it was absolutely necessary to distinguish between the two sexes, and Messrs. Hillier and Tritsch provided me with the frequency distribution of age incidence in the case of 2368 women and 632 men. The distributions are given in Table I., and it will be seen at once that both by the total number and regularity of distribution the material for the women is markedly superior to that for the men. To some extent this is unusual, since exact data as to age are commonly harder to procure in the case of women than of men. However, in this case the incidence frequency curve for women is as smooth a distribution as I have yet met with in disease incidence distributions.* The male distribution is distinctly inferior. The source of this inferiority does not lie, I think, in any physiological difference between the sexes, but possibly in some source of selection which has unconsciously arisen either in the admission of patients or in the cases tabled for this return. However this may be, the male data, if rather rougher than the female, still allow us to form fairly accurate comparisons between the incidence in the case of the two sexes, and admit of our reaching a number of definite conclusions.

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* See, for example, Enteric Fever, "Phil. Trans.," vol. 186, A., p. 390, and Scarlet Fever, "Phil. Trans.," vol. 197, A., p. 459. Dr. W. R. Macdonell has also recently dealt with the ages of lunacy patients on admission to asylums.

TABLE I.

Age of Incidence		16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to 60	61 to 65	66 to 70	71 to 75	76 to 80	81 to 85	86 to 90	Totals.
Frequency	♀	4	25	108	208	357	390	384	330	243	179	84	43	8	4	1	2368
,,	♂	—	8	15	27	36	78	105	102	88	72	65	27	7	2	—	632

These distributions were taken in hand by Dr. A. Lee, my assistant, under the Drapers' Company Research Grant, and skew frequency curves fitted to them by the methods of my paper, "Phil. Trans.," vol. 186, A., pp. 367 *et seq.* The distributions belong in both cases to Type I., *i.e.*, are skew curves of limited range, but they differ very considerably in their constants and characteristics. The curves themselves are plotted to the observations in Diagrams I. and II.

The following are the results reached :—

FEMALE CANCER CASES.		MALE CANCER CASES.	
Mean Age	.. 47·822 years.	Mean Age	.. 53·358 years.
Standard Deviation	.. 11·174 years.	Standard Deviation	.. 11·636 years.
Modal Age	.. 45·874 years.	Modal Age	.. 54·627 years.
Range of Incidence	.. 16·04 years to 99·29 years.	Range of Incidence	.. 1·805 years to 90·679 years.
Skewness	.. ·1744.	Skewness	.. ·1091.

ALGEBRAICAL CONSTANTS OF THE CURVES IN 5 YEAR UNITS.*

Moments $\mu_2 =$	4·9942	$\mu_2 =$	5·4159
$\mu_3 =$	$+$ 2·7882	$\mu_3 =$	$-$2·0269
$\mu_4 =$	67·0955	$\mu_4 =$	78·2054
$\beta_1 =$	·0624	$\beta_1 =$	·0259
$\beta_2 =$	2·6901	$\beta_2 =$	2·6663
$a_1 =$	5·9670	$a_1 =$	10·5644
$a_2 =$	10·6828	$a_2 =$	7·2103
$b =$	16·6499	$b =$	17·7747

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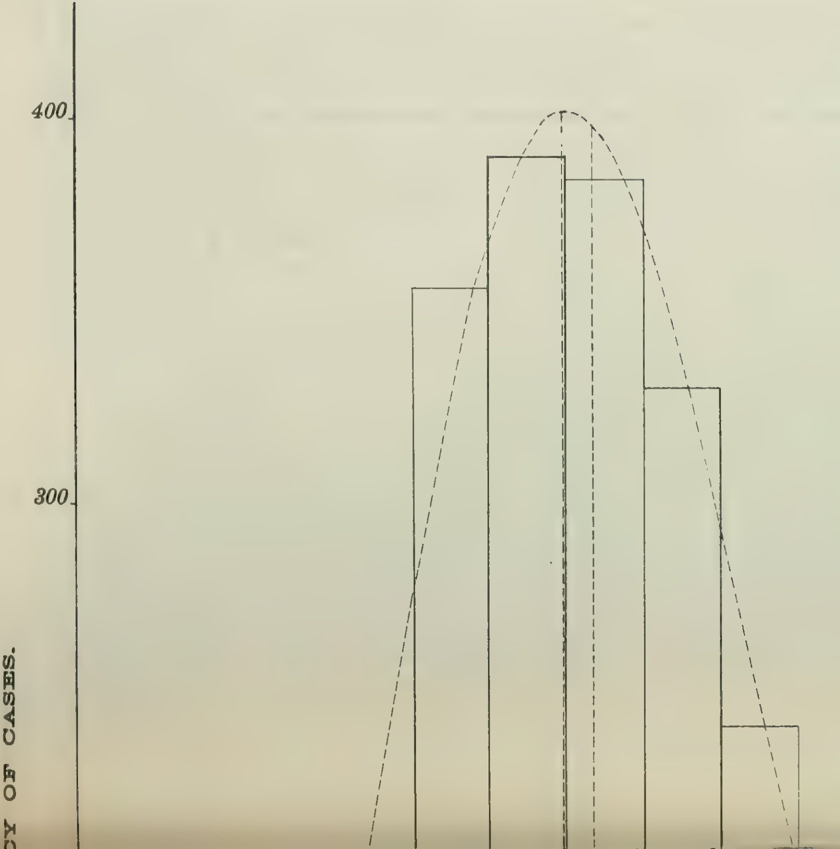
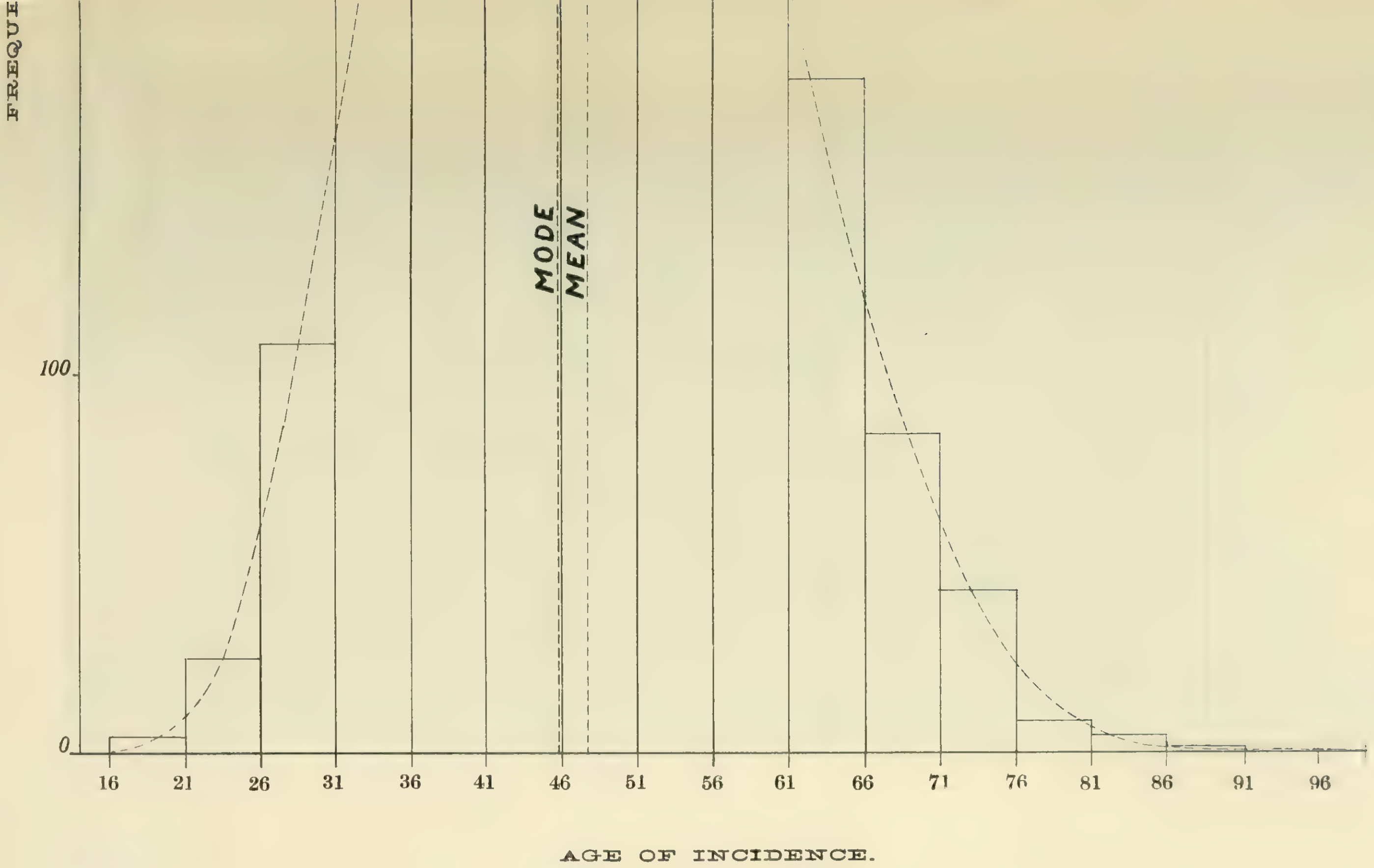
* The notation is that of "Phil. Trans.," vol. 186, A., pp. 367 *et seq.*, now generally adopted for skew variation. The values of the algebraical constants are put on record here as they will be serviceable for comparison in the case of future cancer statistics.

I.

CANCER CASES:

WOMAN.

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MEAN
16
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81
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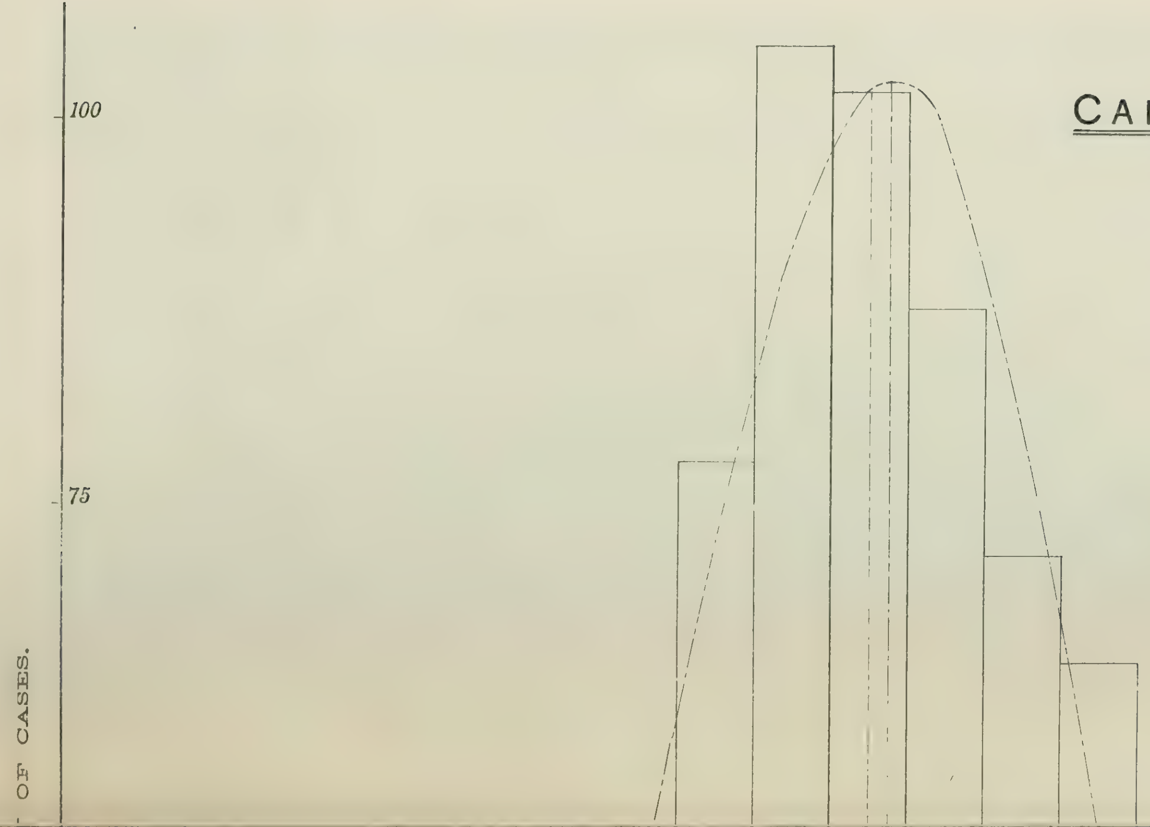
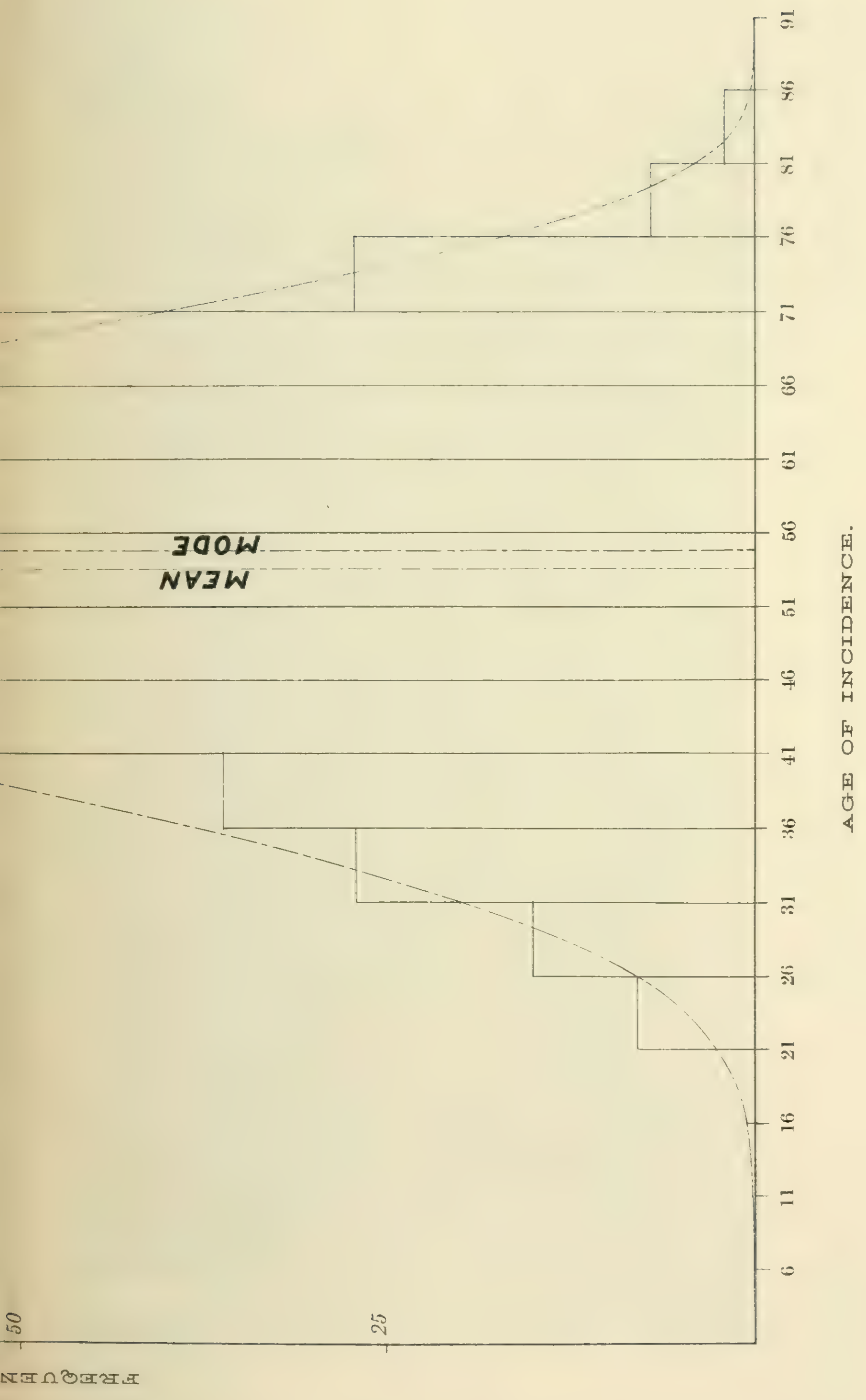
91
96
AGE OF INCIDENCE.

II.



CANCER CASES:

MAN.


MODE
MEAN
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AGE OF INCIDENCE.
25
50
FREQUEN

Equations to the curves, the origin being the mode, unit of x five years, and unit of y one case :

$$\text{Females} \ldots\ldots \quad y=402{\cdot}170\left(1+\frac{x}{5{\cdot}9670}\right)^{3{\cdot}6202}\left(1-\frac{x}{10{\cdot}6828}\right)^{6{\cdot}4813}$$

$$\text{Males} \ldots\ldots\ldots \quad y=102{\cdot}905\left(1+\frac{x}{10{\cdot}5644}\right)^{6{\cdot}6627}\left(1-\frac{x}{7{\cdot}2103}\right)^{4{\cdot}5474}$$

I have to thank Mr. L. W. Atcherley, my demonstrator, for drawing these curves in the accompanying diagrams. We see at once that some very remarkable secondary sexual differences are obvious when we consider cancer incidence curves.

The *modal* age of cancer is almost nine years earlier in the case of woman than in that of man, being about 46 as against his 55. We note, however, that the mean age in woman is higher than the modal, while in man it is less, the mean ages being about 48 and 53 years respectively. The distributions are distinctly skew, and accordingly there seems to be not only in the modal age of incidence, but in the manner of incidence, a sexual difference. Recent investigations into disease incidence seem to me to indicate that where a character is altering with the time—*e.g.*, increase of lunacy rates between 1880 and 1903—the mean falls on the side of the mode in which the change is taking place. Hence I would suggest as probable that the age of modal incidence of cancer is rising in women and falling in men. It might be possible to ascertain this from existing records by separating cases at 30 years' interval if the records have been kept in one manner. The point is merely *suggested* as one for enquiry. The inverse skewness of the male and female distributions is, however, whatever its explanation, a noteworthy fact.

In the next place we see that the age of cancer incidence in men is more variable than in women. The standard deviation, which measures the variability, is about half a year more, corresponding to an increase of about 4 to 5 per cent., as we pass from woman to man. This increase is further evidenced in the extent of range of incidence. This range covers about 83 years in the woman and about 89 years in the man. A still more significant sexual difference is in the position of the range. In the case of the woman the liability to cancer seems to begin at 16, shortly after puberty, and reaches its climax at 46, whence it diminishes till 99 years. These limits ought to be fairly closely fixed by the data provided, and they would seem to shew that cases of cancer can very rarely occur, if they occur at all, in women before the age of puberty.

On the other hand, the range in man is from about 2 years to 91 years, and thus differs very largely from that for women. Now I have pointed out that the data provided for man are in my opinion, besides being more sparse, more irregular and less reliable than in the case of woman. But, allowing on this account for some considerable indefiniteness at the ends of the male range, I should still be inclined to suggest that cases of cancer will be found to occur earlier in the male than in the female, possibly in infancy, and that generally the incidence of the disease with age does not bear the same close relationship to the sexual life. At any rate, though the statistics for males of Messrs. Hillier and Tritsch give no case of cancer in the male earlier than 21 years of age, the theoretical investigation of them seems to indicate that cases of cancer at earlier ages must occur, and probably at ages earlier, than occur with the female. The point is one of rather delicate analysis, but an examination of the curves in the diagrams will shew the comparatively rapid descent at youth of the female curve as compared with the slow trend of the male curve. Taking the statistics in the male case to be *a fair random sample of homogeneous material*, one is forced to the conclusion that cancer is far more likely to occur in childhood in the male than in the female. The point deserves further consideration on a far larger series of male cases.

With regard to the upper limits of both ranges, probably less stress must be laid upon them, but I take it that they indicate that cancer is very rare in man over 90, *i.e.*, it is not a common disease of very old men, and is probably rather more frequent in very old women.

Clearly from the standpoint of incidence Messrs. Hillier and Tritsch's statistics, if they cannot be considered final, are yet theoretically of much interest and suggestiveness.

(2) *Family History of Cancer.*

The great difficulty in investigating the inheritance of disease from the standpoint of the mathematical theory of statistics arises from the complete absence in most cases of one important factor in the investigation, *i.e.*, the number of non-diseased persons who have sprung from diseased persons. A satisfactory solution of the problem of heredity in the tendency to particular forms of disease can probably only be reached when we investigate family history in the general population with this special end in view. In the present case it was comparatively easy to ascertain from the records what percentages of cancer patients had and had not a family history of cancer, but there was no means of determining directly what percentage of non-cancerous persons have a cancerous family history.

The only means of approaching the problem was to ascertain from non-cancerous *patients* in the hospital the percentages with and without family history of cancer. Messrs. Hillier and Tritsch will, no doubt, have stated the degree of accuracy that they think can fairly be attributed to the statements of general hospital patients as to their family history. Let us suppose, however, that there is no great amount of inaccuracy involved; then we have still to meet the objection that the general patients of the hospitals, if we do not confine our attention to the accident wards, are not a fair sample of the general population. They belong in all probability to rather poor stocks, and in such stocks all forms of disease, including cancer, are likely to be more prevalent than in the general population. An enquiry, therefore, as to the family history of non-cancerous patients is not unlikely to lead to an erroneous estimate of the percentage of non-cancerous persons having a cancerous family history. This point it seems to me ought to be borne in mind in interpreting the results of the statistics now to be cited.

In the first series no distinction was made between the sexes, and there were about 6000 cancer to 100,000 non-cancer patients. Of the 6000 cancer cases 3000 had their family history investigated, giving 394 cases with, and 2606 without family history. A sample was taken of 417 non-cancerous patients, with the result that 69 had and 348 had no family cancer history.

Thus the general patients of the Middlesex Hospital for the period in question would be distributed as follows:—

TABLE II.

106,000 General Patients, Middlesex Hospital.

Family History.

		With Cancer.	Without Cancer.	Totals.
Patients.	With Cancer.	788	5212	6000
	Without Cancer.	16,800	83,200	100,000
	Totals.	17,588	88,412	106,000

The correlation between cancer and family history of cancer was then worked out in the usual way* for dealing with characters not quantitatively measureable, and the negative value — ·07 was found.

In other words, a family history of cancer would confer a very slight immunity as regards cancer! This seemed so inconceivable *a priori* that I pressed Messrs. Hillier and Tritsch to obtain statistics for women only, so as to avoid the screening effect of a mixture of the sexes, which, as we have seen, differ considerably in their relations to cancer.

They went into this matter again, and provided me with the following data:—

(*a*) Out of 40,996 female patients 38,680 had not and 2316 had cancer.

(*b*) Out of 2368 female cancer patients—not a series absolutely identical with the 2316 of (*a*)—359 had and 2009 had not a family history of cancer.

(*c*) Out of 753 female non-cancer patients 102 had and 651 had not a family history of cancer.

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* "Phil. Trans.," vol. 195, A., pp. 1—47, where it is applied to vaccination and anti-toxin diphtheria treatment.

These returns enabled me to prepare TABLE III., which gives the distribution of 1000 patients at the Middlesex Hospital.

The correlation between the presence of cancer and a family history of it was then worked out by Dr. Lee, with the result that the correlation = ·0335.

TABLE III.

1000 FEMALE PATIENTS, MIDDLESEX HOSPITAL.

Family History.

		With Cancer.	Without Cancer.	Totals.
Patients.	With Cancer.	8·56	47·93	56·49
	Without Cancer.	127·81	815·70	943·51
	Totals.	136·37	863·63	1000

Clearly, although now there is a slight correlation between a case of cancer and a family history of cancer, it is so slight as to be within the probable error of random sampling, which is say about ·04. Even if we could depend upon it as the true value, it is so small as to be quite negligible as a factor of diagnosis. The result is so unexpected that it is unlikely to be accepted without confirmation from statistics actually collected *ad hoc* on the general population as distinguished from a hospital population. Still, if the point could be established, *i.e.*, that cancer was even largely free from any hereditary influence, it must tend to direct enquiry as to the origin of the disease into still more definite channels than at present, for it would at once cut off a large field of hypothesis.

Personally I only give the result that flows from Messrs. Hillier and Tritsch's data. It must be for others to judge how far the evidence of the material is weakened by such obvious facts as: that a hospital population is not a fair sample of the general population; that the family histories may be, probably are, very incomplete; and that because a patient with a family history of cancer is in hospital with a non-cancerous disease, it does not follow that he or she may not suffer later from cancer. All such facts can hardly be allowed for even roughly, yet the data do seem to justify further enquiry and suggest to my mind that possibly the tendency to cancer does not run strongly in families. I admit that I should accept this only with reluctance; for general health,* I find from my own investigations, is inherited exactly as any physical character like shape of the head; and length of life is inherited also.† It is difficult to conceive that longevity and general health can be inherited if the tendencies to particular diseases do not largely run in families. Cancer may be an exception of course; and certainly the above results, without being convincing, do call upon us to pause and ask for further enquiry.

(3) *Tuberculosis and Cancer.*

In this matter the statistics are not very full, nor indeed suitable for theoretical treatment. I consider the data under two headings.

1. *Cancer and Non-Cancer Cases with Tubercular Family History.*

Among cancer patients 26·87 shewed a family history of tuberculosis. Among non-cancerous patients there was a tubercular history in 30·93 per cent. of cases. Applying these results to our typical 1000 female Middlesex Hospital patients we have the following table:—

TABLE IV.

1000 Female Patients, Middlesex Hospital.

		With Cancer.	Without Cancer.	Totals.
Tubercular Family History.	With.	15·18	291·83	307·01
	Without.	41·31	651·68	692·99
	Totals.	56·49	943·51	1000

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* "On the Inheritance of the Mental and Moral Characters in Man, and its comparison with the Inheritance of the Physical Characters" ("Huxley Memorial Lecture," Anthropological Institute, 1903).

† "Biometrika," vol. i., pp. 50—89.

The correlation is negative and equal to −·055. The statistics, therefore, shew no very significant relation between the presence of cancer and a tubercular family history. The slender relation, if any weight at all could be given to it, would indicate that tubercular families were very slightly more free than non-tubercular families from cancer.

2. *Simultaneous Occurrence of Cancer and Tuberculosis.*

The only evidence on which I think we can here proceed is that of the 166 Middlesex necropsies cited by Roger Williams, which shew an association of cancer and phthisis in 16·27 per cent. of cases.

During the years 1880—89 inclusive the total number of non-cancerous female patients admitted to the Hospital was 11,919, and of these 710 were cases of one form or another of tuberculosis. From these data I prepared the following table:—

TABLE V.

1000 Female Patients, Middlesex Hospital.

	With Cancer.	Without Cancer.	Totals.
With Tuberculosis.	9·19	56·20	65·39
Without Tuberculosis.	47·30	887·31	934·61
Totals.	56·49	943·51	1000

The correlation between presence of cancer and presence of tuberculosis is from this as high as ·279. This result, if we could accept it without hesitation, is extremely significant.*

Unfortunately there is a regulation at the Hospital that cases of "consumption" as such are not admitted. Hence when tuberculosis was accompanied by cancer it would be admitted, when unaccompanied by cancer it may be refused.

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* About as close a relation as between grandparent and grandchild for any inherited character.

This would undoubtedly tend to diminish the number of the group of non-cancerous tubercular patients. If this regulation did not exist at the Hospital it would still be hardly likely that the proportions of non-cancerous, tubercular, and non-tubercular patients could exceed the proportions of tubercular and non-tubercular *deaths* (among non-cancerous deaths) in the country at large. I find that of the total death rate of non-cancerous persons in this country for the years 1891—95, 11·78 per cent. was due to tubercular diseases.

Rearranging my four groups on this hypothesis I obtained the table following:—

TABLE VI.

1000 HYPOTHETICAL FEMALE PATIENTS.

(The Non-Cancerous proportioned according to Death Rate).

	With Cancer.	Without Cancer.	Totals.
With Tuberculosis.	9·19	111·15	120·34
Without Tuberculosis.	47·30	832·36	879·66
Totals	56·49	943·51	1000

The correlation is now equal to ·096. This is not nearly so large as in the previous case, but still sensible. The actual correlation between coexistence of tuberculosis and cancer must accordingly lie between ·1 and ·3. In other words, unless the 166 necropsies were far from a random selection, *i.e.*, made particularly on cases where some tubercular complication was suspected, there seems little doubt that a significant relationship exists between the presence of tuberculosis and cancer. Otherwise it would be necessary that about 25 per cent. of the non-cancerous who suffer from tubercular disease should either not die from tuberculosis, or not be registered as dying from it, to upset this result.

Of course we need a far larger random sample* of cancer cases than 166 to determine properly the proportion of instances in which it is associated with tuberculosis, and material will no doubt be shortly forthcoming. Meanwhile, the conclusion to be drawn from the present data is that there is little or no relation between the presence of cancer and a tubercular family history, but there is a relation between the presence of cancer and the presence of tuberculosis. If these results be substantiated when more comprehensive statistics are available, it would seem probable that carcinoma materially favours the development of "acquired" tuberculosis, for it does not seem to be associated with any hereditary tendency to tuberculosis.

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* Confirmatory evidence may be deduced from Foulerton's data cited on p. 120, supposing the 128 post-mortem examinations there referred to are independent of the present 166. We have then the following table for 1000 cases:—

1000 CASES BASED ON FOULERTON'S DATA.

	With Cancer.	Without Cancer.	Totals.
With Pulmonary Tuberculosis.	16·33	186·37	202·70
Without Pulmonary Tuberculosis.	40·16	757·14	797·30
Totals.	56·49	943·51	1000

The distribution has been taken to be in the proportions of the female patients, which agrees, however, closely with that of TABLE II. The correlation is here ·140. But the proportion of tubercular cases in Foulerton's 128 cancer cases is far larger than in Roger Williams' 166 cases, and the proportion of tuberculosis in Foulerton's 162 non-cancerous cases seems also very high if they are to be taken as a "random" sample of the non-cancerous cases. One suspects an unconscious bias in favour of a post-mortem examination in cases with tubercular disease.

SOME POINTS IN THE TREATMENT OF CARCINOMA BY THE X-RAYS.

By CECIL R. C. LYSTER,

MEDICAL OFFICER IN CHARGE OF THE ELECTRIC DEPARTMENT.

In the treatment of carcinoma by X-rays the following points are the most noticeable:—

Diminution of pain, healing of ulceration, and retrogressive changes in the growth.

Diminution of pain takes place in every case where the lesion involves the termination of the nerves. Where the growth presses on a nerve trunk no immediate relief can be expected. Some form of local anæsthesia is the first result of exposure to X-rays, produced by a vacuum tube with a high resistance to the current used. I noticed this in the case of my own fingers. After being exposed to X-rays for a considerable time daily at some distance from the tube there was a distinct loss of tactile sensation.

In tying a knot this was very apparent. This loss of sensation increased until I found difficulty in recognizing the shape of anything I touched without seeing it. There was no change visible in the condition of the nails or skin.

It was not till after three months' constant exposure that I noticed my nails were becoming hard and dry, with a tendency to split. The hair came off the back of my hands, and I soon found the skin, where most exposed to the rays, became dry and scaly. The nails seemed to stop growing, and separated from the fingers by a greatly thickened matrix.

This was, shortly, the result of exposure to X-rays at a distance of some 16 to 18 inches for various periods amounting to possibly half-an-hour daily.

By this time it became necessary to use some means of protecting my hands from the action of the rays, so I painted a pair of thick washleather gloves with white lead. With the use of these the skin became almost normal, and the nails commenced to grow again.

This improvement continued till May 1903, when I had occasion to expose my left hand without a lead glove for a period of twenty minutes to X-rays, produced by a tube with not a very high resistance, with a current of 8 amperes, 12-inch coil. Three days after the exposure I found the back of the first, second, and third fingers became badly inflamed, the skin blistered. There was very severe aching pain extending to the whole hand and arm, sloughs formed on all three fingers and took several weeks to separate, and the nails came off. When the resulting ulcers healed up the skin over them was very thin, and there were a number of small dilated vessels visible through the skin; also several thickened warty patches had formed in the skin where it was not actually destroyed.

The fingers are still tender and at times painful, but the actual loss of tactile sensation is well marked.

This seems to give a clue to the diminution of pain in the seat of disease reported by so many patients; and I have observed that this is most marked in such cases as mammary carcinoma where no operation has taken place, or where the recurrence after operation is limited to the skin and structure immediately adjacent to the original seat of the disease. Where the disease has extended to the glands beneath the clavicle, in most cases there is little or no alteration in the pain. This also seems to apply to cases of uterine or rectal carcinoma, or where there is obvious pressure in the direction of a nerve.

Where the uterus or rectum is much fixed, or where there is considerable growth in the pelvis, there is seldom any immediate alteration in the pain, but in those cases where there does not appear to be much fixation there is nearly always considerable relief. The last three cases of uterine carcinoma which have been treated here have experienced great relief from pain, although the uterus in each case was fixed. Also in squamous carcinoma where there is not any marked enlargement of secondary glands there is decided lessening of pain. But in those cases where there is secondary deposit in the glands the progress of the disease is usually so rapid that the longest and most powerful exposure to the X-rays that can be given, without causing destruction of the healthy tissue, is insufficient to move or more than slightly retard the progress of the disease, or reach the pain.

In rodent ulcer I have not noticed this so markedly. In deep and extensive cases where the nerves are nearly exposed the patients feel any changes of weather, and complain of very severe pain extending from the seat of the disease.

In sarcoma as a rule the pain seems to be due to pressure and it is not relieved at once.

The healing of ulcerated surfaces after exposure to X-rays is very noticeable. This is most remarkable is cases of rodent ulcers. Where the ulcer is superficial and not of any long standing the surface will clean, and healthy granulations appear; the edges will lose their hardness and commence to heal after three or four exposures. This healing process continues rapidly, and the scar left will be soft and of good colour. In deeper and old standing cases the process is much slower, and even when the ulcer is quite healed it will recur unless the treatment is continued and the general health of the patient can be maintained.

In an old and very persistent case that I am treating, the length of exposure and strength of the rays required to heal these recurrences is so great that there is considerable difficulty experienced in not producing the destructive action of the rays (usually but incorrectly called burning).

The case is that of a man, aged 63. A rodent ulcer commenced thirty years ago. There is loss of the upper jaw on both sides, both cheeks and upper and lower lips, and the greater part of the lower jaw on both sides. The disease had been steadily progressive till the X-rays were commenced in April 1902. The ulceration at once began to heal, and in December 1902 there were only a few small unhealed ulcers left. Under the lower eyelid and on the left side of the lower jaw these remained unhealed, and the length of exposure had to be increased; this at once caused an improvement. In July 1903 there was some extension of the ulceration on the left side of the lower jaw. At the same time his general health was not good, and he had difficulty in taking food, but with an increase in the strength of current used in producing the X-rays the extension of disease ceased and is now healing. The difficulty experienced in this case seems to be caused to some extent by his inability to take sufficient nourishment. Every few weeks he seems to get weak and ill, and an increase in the ulceration will take place. This will require treating regularly with as long daily exposure as we are able to give without destroying the healthy tissue.

In the majority of squamous carcinomata, when they are too far advanced to be operated on and the growth removed, the disease has already attacked the adjacent glands; it progresses so rapidly that X-rays' treatment cannot keep pace with it, and though it does in many cases relieve or lessen the pain, it does not stop the progress of the disease.

In fungating ulceration of sarcomata the same may be said: the progress of the disease is so rapid that the rays have little or no effect on it.

Ulceration in cases of mammary carcinoma, either recurrent or primary, heals well, but this depends on the general condition of the patient. In nearly all cases the wound becomes cleaner and the discharge less foul; and where it is possible to continue the treatment regularly no secondary deposits develop, the wound becomes superficial, and the edges heal in. The following case illustrates well the healing process:—

The patient, aged 63, had her right breast removed in 1899. The growth was mammary carcinoma, the axillary glands were not removed, recurrence took place in the scar, and in November 1901 there was a thickened mass in the position where the nipple originally was situated, adherent to the ribs and to the skin, with ulcer 2 inches by 1½ inches, with hard edges and a foul irregular base; the axillary glands were enlarged slightly, but did not feel hard. X-ray treatment was commenced in November. After six weeks the wound was noticeably cleaner and rapidly became superficial and healed: at the same time the hard mass decreased in size and became movable on the ribs, the glands in the axilla rapidly disappeared, and in June 1902 there was only a slight thickening to be felt, and the scar was soft and healthy. In August 1903 the patient was in excellent condition, the scar was soft and quite healthy, and there was no thickening to be felt.

In another case of recurrence after removal of both breasts there was an ulcerated surface 20 inches by 10, with numerous nodules in the skin extending under both arms. This surface is now healed with the exception of one small ulcer, quite superficial, 1½ inches by 1, over the sternum. The cutaneous nodules have also nearly all disappeared.

The retrogressive changes that take place are very marked in a certain number of cases; cutaneous and subcutaneous nodules in recurrent mammary carcinoma generally disappear.

In one primary inoperable case the growth decreased in size, and became sufficiently free from its attachments to the ribs to render operation possible. This was done in July 1903. There has been no recurrence up to now.

In another case, a patient of 65 years of age, the disease has existed for seven years, extensively involved and ulcerated from the nipple into the axilla. There were numerous cutaneous and subcutaneous nodules extending to the back. The glands in the axilla were enlarged and fixed. The breast was fixed firmly to the chest-wall, and was stony hard. The case was treated up to the beginning of May 1903 with High Tension Electric Discharge. This had no effect; indeed the growth slightly increased, and the ulceration remained the same. On May 11th X-ray treatment was commenced, and by the end of June a very marked improvement had taken place, the ulcerated surface was healing well, the growth was softer, and some of the smaller skin nodules had disappeared. This improvement has gone on till the present time. The breast is fairly soft and movable. There is no ulceration, and the cutaneous and subcutaneous deposits have nearly all gone.

X-ray treatment of malignant disease should never be attempted where an operation is possible; but in those cases where no operation is possible pain can be relieved, and in cases that are local and superficial the treatment may be considered hopeful, though no hopes should be definitely held out of the growth vanishing. I refer most particularly now to carcinomata disappearing altogether. It is sufficient to hope that its tendency to enlarge may be checked considerably, and in time its malignant nature somewhat modified. The word "cure" should never be employed. With the most unfavourable type of case the relief from pain can in most cases be relied on, and although the growth, more particularly when ulcerated, shews marked signs of improvement up to a certain period, once patients really start on the downward grade they go very rapidly. This is especially noticeable with the intra-pelvic carcinomata, *i.e.*, uterine and rectal, and is in no small measure due to the depth of the growth preventing the application of powerful exposures, so injurious to the more superficial tissues, from being continued for such a time as to check the growth.

A NOTE

ON THE

TREATMENT OF CARCINOMA WITH SUBCUTANEOUS INJECTION OF FRESH EXTRACT OF THYMUS AND THYROID GLANDS.

By ALEXANDER G. R. FOULERTON.

The reasons which suggested the attempt to treat inoperable cases of carcinoma by means of the subcutaneous injection of freshly-made extracts of thymus and thyroid gland-substance having been given already at some length,* it will only be necessary in this note to describe the actual method employed, and to refer very briefly to the results which have been observed in a few cases thus treated.

It need scarcely be said that the treatment of inoperable cases of carcinoma by the administration by the mouth of dried extracts of both thymus and thyroid gland-substance has long since been tested at the Hospital, but without any material benefit having been obtained. It seemed possible, however, that a somewhat different effect might be produced by using a freshly-prepared extract of the gland-substance, and by the administration of it subcutaneously.

At the outset much preliminary work was necessary in order to test the physiological action of fresh extracts of the gland, for unfavourable symptoms which had been recorded as following on the administration of dried extract of thyroid by the mouth suggested caution, and it was also thought that the direct injection of considerable doses might have the effect of increasing the coagulability of the blood to a dangerous degree. One result, however, of the employment of the treatment has been to shew that a freshly-prepared extract of these glands may be injected with absolute impunity, even when relatively large doses are employed—a fact which may prove of value when it is desirable to employ the full therapeutical effect of thyroid gland-substance in diseases other than carcinoma.

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* "The Causation of Carcinoma and Sarcoma" ("The Practitioner," July and August, 1902).

A number of rabbits were first injected with aqueous extracts of both thymus and thyroid glands which had been bought at butchers' shops without any special precautions to ensure freshness. Of the rabbits thus treated a considerable number passed quickly into a comatose condition, and died within eighteen to twenty-four hours of the time of injection. Bacteriological examination made of the tissues of rabbits which had died in this manner negatived the idea of any bacterial infection, and it seemed clear that death was due to some tissue poison. In a further set of experiments it was found that when care was taken to obtain the glands in a perfectly fresh condition direct from the slaughter-house no injurious effect whatever was produced by the injection into a rabbit of an extract of as much as five grammes of either gland. For the purposes of the treatment which was proposed a horse was next "immunized" against extract of the thymus-gland. In the case of this animal some slight rise of temperature frequently followed an injection, and trouble was caused by abscesses which formed from time to time, these latter being attributable as a rule to faulty technique.

From the experiments it seemed certain that the injurious results obtaining in the first series of experimental rabbits had been caused by substances produced in the course of changes occurring in the glands after death, and that the fresh glands did not contain any substances which, in the doses employed, were definitely toxic. My conclusions, therefore, were in complete agreement with those which Cunningham had arrived at some years previously,* but I had at the time unfortunately overlooked his work, a knowledge of which would have saved me much time and trouble.

The details of treatment of patients have varied somewhat since the commencement. The first patients received a preliminary course of treatment with serum from a horse which had been immunized against thymus gland-substance, and were then put on injections of a similar extract. Afterwards the preliminary serum treatment was omitted, and patients were treated from the first with equal quantities of extracts of thymus and thyroid glands.

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* "Experimental Thyroidism" ("The Journal of Experimental Medicine," vol. iii., 1898).

The gland extract is prepared as follows:

Ten grammes of the gland substance are pounded up with 2 c.c. of glycerin and a small quantity of normal saline solution. Additional normal saline solution, sufficient to bring the total amount of extracting liquor up to 50 c.c., is then poured over the pounded mass, and the mixture is either kept in a water bath at a temperature of 60° C. for half an hour, or is thoroughly shaken up in the cold. The latter method of extraction is thought to be the preferable one, whilst extraction at 60° C. has been employed in warm weather, or when there was any reason to question the absolute freshness of the glands. The extract has been used either immediately after preparation, or within three days. If not used immediately it has always been heated to 60° C. for half an hour, and experience has shewn that if the glands are taken fresh from the slaughter-house and the extract prepared at once, this degree of heating will ensure subsequent sterility. Whichever method of extraction is used, the mixture is allowed to stand until the gland-débris has settled, and the opalescent extract is then pipetted off for use.

Treatment is commenced with injections of 3 c.c. of a mixture of equal parts of extract from each gland, and the dose is rapidly increased up to 10 c.c., injections being given twice, thrice, or oftener in the week. After injection of the extract patients are kept in a recumbent position for some hours, but as a matter of fact no general symptoms such as syncope, giddiness, or nausea have ever occurred. The worst that has been complained of has been some pain and a little œdema at the site of injection, the feeling of soreness in such a case passing off in a few hours. In only a single case has any suppuration occurred, and then in a patient who returned to the Hospital about a fortnight after her discharge with a chronic abscess, about the size of a hazel nut, which had developed at the spot where the last injection had been given just before she left the Hospital.

The glands used have been obtained as a rule from calves; occasionally those from sheep have been substituted. The injections have been given into the forearm, into the iliac region, and between the shoulders.

As to the results of treatment by this method, there is not very much to be said at present. The treatment has been suggested by considerations of a purely theoretical kind, and the number of cases which have been treated up to now is not sufficient to enable any pronouncement as to its exact value—if it has any value—to be made.

In all, fourteen cases have been treated with injections of either thyroid and thymus gland or with the latter alone. Of these, seven were cases of squamous-celled carcinoma occurring in males; the other seven were cases of spheroidal-celled carcinoma of the breast occurring in females (one or two cases which received less than six injections are not included in the fourteen).

Of these fourteen cases the seven following may at once be dismissed with the remark that, so far as we could observe, the treatment had no effect of any kind:—

Nature of growth.	Age and sex of patient.	Number of injections given.
Carcinoma of lip	49 m.	6
,, of tongue	35 m.	6
,, ,,	51 m.	29
,, of pharynx	48 m.	19
,, of breast	34 f.	12
,, ,,	58 f.	24
,, ,,	58 f.	14

The remaining cases, for one reason or another, call for special comment:—

Case of carcinoma of the upper end of œsophagus, involving the glottis; male, aged 52 *years.*—When the treatment was commenced this patient presented an indefinite mass on each side of the larynx. After the injection of mixed extracts of thymus and thyroid glands a considerable improvement of the general health occurred; the voice which had been hoarse became clearer, and there was a gain of a few pounds in body weight. Also the mass which could be felt externally diminished somewhat in size. This apparent improvement held good for some weeks, until a sudden attack of laryngeal obstruction necessitated a laryngotomy. After the operation the injections were left off, rapid loss of weight occurred, and the patient died with pneumonia some weeks later.

Case of carcinoma of the tongue, with secondary disease of the right submaxillary lymphatic glands; male, aged 44 *years.*—This patient had been operated on for carcinoma of the tongue in February 1902. He was admitted into the Hospital in May 1902 with recurrence of the primary disease and a mass of enlarged submaxillary glands. A thorough course of treatment by means of mixed extracts of thyroid and thymus glands was carried out. After a time deep fluctuation was to be felt in the submaxillary mass and suppuration occurred, commencing at some distance below the surface. The patient died on 4 August from causes connected with extensive suppuration in the neck.

Case of carcinoma of the lower lip, with large mass of diseased cervical glands on the left side; male, aged 66 *years.*—This is the only case of the series in which the clinical diagnosis has not been verified by microscopic examination of the new growth. On admission in March 1903 the patient presented a large mass of new growth in the left side of his neck. The history was that in 1896 a growth had been removed from the lip. There had been no recurrence of the primary growth, but four operations for the removal of cervical glands had been carried out, the last of these in September 1902. The patient was treated at first with X-rays, and injections of extract of thyroid and thymus glands were commenced in the first week of April. Softening of the cervical mass was noticed at the end of May, and in June the softened mass was punctured with a trocar and a quantity of clear viscid fluid was evacuated. The patient left the Hospital shortly after this, and his subsequent history is not known.

Case of carcinoma of the breast; female, aged 45 *years.*—This patient was admitted into the Hospital in January 1902, the right breast having been removed in May 1901. On admission it was found that there was considerable disease of the axillary and cervical glands on the right side. After injections of the extract of thyroid and thymus glands had been given daily for some three weeks, it was thought that there was some diminution in size of the diseased cervical glands, and afterwards it seemed as though the axillary glands had undergone a similar change. During the last week in March nodules of new growth appeared in the neighbourhood of the scar remaining after the amputation of the breast, and the patient left the Hospital in April, her condition then being somewhat worse than it was at the time of her admission. She died in January 1903.

The following three cases present points of special interest in connection with the method of treatment employed:—

Case of carcinoma of the breast, followed by general carcinomatosis; female, aged 45 *years.*—This patient was operated on for carcinoma of the right breast in 1896; recurrence of the primary growth was noticed in July 1901, and another operation was carried out. The patient was admitted into the Hospital in the following December. On admission it was found that there were several subcutaneous nodules around the scar left after the operations, and numerous other small nodules of new growth were scattered over the abdomen, the front of the chest, and the back. These nodules increased in number, and there were more than two hundred of them when treatment by injection of the serum from the horse which had been immunized against thymus gland-substance was commenced on 1 January 1903. Twenty-two injections of the serum were given, and injection of extract of thymus gland was commenced on 5 February, followed later on by injection of extract of both glands. The latter treatment was continued until the beginning of March. During the treatment careful observation of the condition of the nodules of new growth was made, and it is certain that during this period of treatment several of the nodules of new growth disappeared altogether and that others became smaller. Also, during the two months over which the treatment extended few, if any, nodules of new growth appeared. On 3 March two of the nodules suppurated, and the special treatment was discontinued on this date. Between 3 and 17 March a large number of new nodules in the subcutaneous tissue appeared, and many of the older nodules broke down and suppurated. From this date until the patient died on 5 July nodules were constantly sloughing. And when death occurred the patient was covered with small circular ulcers, the bases of which were formed by sloughing masses of new growth. The general effect produced by this may be best described by saying that after death the body presented the appearance of being covered with sloughing syphilitic gummata.

Case of carcinoma of the breast and of the cervix of the uterus; female, aged 42.—This patient had undergone four operations for carcinoma of the left breast and disease of the axillary glands between the years 1895 and 1901. She was admitted into the Hospital in February 1902 with disease of the left axillary and cervical glands. Since then the patient has been treated, with periods of intermission, first with the serum and afterwards with the extracts of thyroid and thymus glands. At the present time her condition is considerably better than it was when she was admitted two years ago. There is now no enlargement of the cervical glands to be felt; the axillary glands are still obvious, but they are represented by small, hard, discrete masses. During the two years three small nodules of new growth in the subcutaneous tissue of the front of the chest and abdomen have appeared. One of these was excised for microscopic examination some twelve months ago. There has been no recurrence at the place from which this nodule was removed, and the other two nodules are now rather smaller than they were when first noticed about twelve months ago. In addition to the carcinoma of the breast, with the secondary new growths which have been referred to, there is also a malignant new growth of the cervix. Some eighteen months ago it was discovered by accident that the patient had a mass of growth in the right axilla, in addition to the disease which has already been described. It was difficult at the time to explain the cause of this new growth, which seemed to have been formed in the axillary space independently of the glands. Later on it was found that the patient was suffering from a malignant new growth of the cervix of the uterus; and it was thought that the growth in the right axilla was probably secondary to the disease of the cervix, and that the other new growths were secondary to the carcinoma of the breast. A combination of carcinoma of the breast and of the cervix of the uterus—the former of the spheroidal-celled and the latter of the squamous-celled type—with secondary new growths of the cervical and axillary glands and of the subcutaneous tissue of the trunk corresponding in type, the gland-disease to the mammary growth and the subcutaneous nodules to either of the primary growths, has been observed at the Hospital twice during the last four years. In this particular case there has been opportunity to examine microscopically only the new growth recurring in the left breast and a nodule from the subcutaneous tissue over the front of the chest, and in each the type of growth has been that of the spheroidal-celled carcinoma. The exact nature of the uterine growth, and of that in the subcutaneous tissue of the right axilla, remains therefore a matter of uncertainty, but it is believed to be in all probability of the squamous-celled type. However that may be, the growth in the right axilla has undergone a very marked diminution in size, just as the left cervical and axillary glands have diminished.

Case of carcinoma of the breast; female, aged about 45 *years.*—This case has been under the care of Dr. Snell of Brighton, and the history is of a rather unusual kind. Some three years ago the patient was operated on for carcinoma of the right breast, the nature of the new growth being subsequently verified by microscopic examination. A second operation for disease of the right axillary glands was carried out in 1902. By November 1902 there was extensive disease of the right axillary and supra-clavicular glands. It was decided at this time that no further operation was possible; and a surgeon, who has a very large experience of the treatment of malignant disease, expressed the opinion that the probable further duration of life was not more than three months. There were family reasons which urged the patient to go abroad, and she arrived at Cairo early in 1903. At this time there was a large mass of new growth in the right side of the neck, and in the hope of possible relief an oophorectomy was performed in February 1903. After the operation it was found that the ovaries which had been removed were enlarged; Professor St. Clair Symmers of the Egyptian School of Medicine decided that both glands were affected by carcinoma of a scirrhous type, and his opinion was confirmed by that of a Pathologist in London to whom sections were forwarded. The patient returned to England in March, and treatment by thyroid and thymus extract was commenced in April. At this time the patient had a very large mass of diseased cervical glands and another mass of new growth in the axilla. There was no recurrence of the primary growth in the breast. The patient was a complete invalid, unable to get out of doors except in a carriage, and the probable expectation of life appeared to be limited to a few months. Soon after the injections were commenced it was noticed that diminution in the bulk of the cervical tumour had occurred, and this diminution continued until the last time when the patient was seen by myself in October 1903. The decrease in size of the cervical tumour was accompanied by very severe neuralgic pains in the right shoulder and fore-arm, due to traction on the trunks of the brachial nerves. During the period of treatment, up to October last, a few small nodules of new growth appeared over the front of the sternum. But, allowing for these, there could be no question as to the fact that the course of the malignant disease had been checked during the period of treatment, and that the patient was in October last in a much better condition, both as regards the malignant disease and as regards her general health, than she was when the treatment was commenced in April preceding. The patient in January 1904 was in a fairly satisfactory condition, and was able to go abroad again; the treatment is being continued under the direction of Dr. Nolan of Cairo.

A review of the cases which have been quoted will shew that there is as yet no good reason to believe that in this method of treatment any cure for carcinoma has been found. But at the same time it appears to me that there are some indications that the method deserves further trial. So far as the seven cases of squamous-celled carcinoma which I have mentioned are concerned, I am not inclined to think that the results obtained so far afford any support to the theory which I have advanced as to the possible use of the extracts of these glands in the treatment of this form of carcinoma at any rate. The temporary improvement in one case, and the changes which occurred in the glands in two others, are such as might very well appear by accident in any series of seven cases of carcinoma of this type which had not received any special treatment.

With regard to the cases of carcinoma of the breast, the case is, I think, perhaps a little different. I have specially referred to four out of the seven cases treated. Of these, the first was a fairly acute case, and in spite of a temporary improvement I do not think that it could be said that the treatment did in fact influence the progress of the disease.

In the second of these cases there was a remarkable breaking down of the new growth to an extent which in my own experience is unique. And, so far as it goes, this case would appear to support my hypothesis that the secretion of the ductless glands exerts an inhibitory effect on the growth of epithelium.

As to the other two cases, there can be no question as to the fact that since treatment was commenced the malignant disease has in each case subsided to a marked extent. The question which cannot at present be decided is, whether my series of seven cases of carcinoma of the breast has by accident included two cases of atrophic scirrhous disease, or whether the decrease in the extent of the new growth has been brought about by the treatment employed.

In view of this uncertainty it need only be suggested that the treatment is one which might properly be subjected to further tests, as possibly affording a means of treating inoperable cases. It is proposed at the first opportunity to combine the treatment by injections of gland extract with oophorectomy in cases of carcinoma of the breast—and this in view of the course of one of the breast cases which I have mentioned.

In concluding this note I have to express my thanks to Mr. Henry Morris, to Mr. Andrew Clark, and to Mr. Pearce Gould for allowing me to test this means of treatment on patients with inoperable cancer in the Middlesex Hospital; and also to Dr. Snell of Brighton, who has carried out the treatment in the last of the cases mentioned above.

APPENDIX.

CASES OF MALIGNANT DISEASE,

1900–1903.

STATISTICAL AND OTHER DETAILS

RELATING TO

667 CASES OF MALIGNANT DISEASE

ADMITTED INTO THE MIDDLESEX HOSPITAL IN THE THREE YEARS 1900—1902.

By ALEXANDER G. R. FOULERTON, F.R.C.S., and
W. T. HILLIER, M.R.C.S.

With slight alterations in its details, Table I. here given corresponds to Table I., pp. 185-6, in Vol. I. of these Reports, extended up to the end of the year 1902. During the additional period 19 new cases of sarcoma were observed.

TABLE I.

A.—*CASES OF CARCINOMA TABULATED ACCORDING TO AGE AND SEX.*

Site of Primary Growth.	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to 60	61 to 65	66 to 70	71 to 75	76 to 80	81 to 85	86 to 90	M.	F.	Total.
Lip . .	..	..	..	..	1	2	2	1	1	2	3	..	1	1	..	14	..	14
Cheek . .	..	..	..	..	..	..	1	..	1	..	..	1	1	..	..	4	..	4
Palate . .	..	..	..	..	..	..	1	..	2	..	1	..	..	..	..	4	..	4
Tongue	..	..	..	2	1	5	7	11	18	6	4	2	1	..	..	57	..	65
	..	..	2	..	..	1	1	1	..	3	..	..	..	..	..	..	8	
Pharynx .	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	2	..	2
Œsophagus .	..	..	..	..	..	1	2	8	1	2	1	..	..	..	..	15	..	15
Stomach	..	..	1	1	1	2	2	4	4	3	2	..	..	..	..	20	..	32
	1	..	..	1	1	..	2	..	3	3	1	..	..	..	..	..	12	
Duodenum .	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	2	..	2
Colon .	..	..	..	..	1	..	..	..	1	3	..	..	..	..	..	5	..	12
	..	..	..	..	1	1	..	..	4	..	..	1	..	..	..	..	7	
Rectum	..	..	..	2	..	1	3	4	..	3	4	1	..	1	..	19	..	48
	..	..	..	..	..	4	5	6	6	2	3	1	1	1	..	..	29	
Omentum .	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	2	..	2
Liver .	..	..	..	..	1	..	1	1	1	1	..	..	..	..	..	5	..	6
	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	

Site of Primary Growth.	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to 60	61 to 65	66 to 70	71 to 75	76 to 80	81 to 85	86 to 90	M.	F.	Total.
Bile Duct	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	2
	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	
Pancreas	..	..	..	..	1	..	..	1	..	2	..	..	..	..	..	4	..	7
	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	3	
Kidney	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	3
	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	2	
Bladder	..	..	1	..	..	..	1	2	..	..	1	..	..	1	..	6	..	12
	..	..	..	..	..	1	1	..	..	2	1	..	1	..	..	..	6	
Vulva .	..	..	..	..	..	1	..	2	..	..	1	1	1	1	..	..	7	7
Uterus.	..	..	3	9	10	13	25	17	11	7	5	2	1	..	..	..	103	103
Prostate	..	..	..	..	..	..	..	1	..	..	2	1	..	..	..	4	..	4
Penis .	..	..	..	..	1	2	..	1	..	..	..	2	..	..	..	6	..	6
Testicle	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Scrotum	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	2	..	2
Skin, Trunk and Limbs	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	2	2
Skin, Scalp and Face	..	..	..	..	..	1	1	..	..	..	..	1	..	..	..	3	..	4
	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	
Skin, Rodent Ulcer	..	..	..	..	1	1	1	1	..	1	1	1	..	..	..	7	..	12
	..	..	..	..	..	..	1	1	2	..	1	..	..	..	..	..	5	
Breast .	..	..	..	..	..	..	1	..	..	1	..	..	..	..	1	3	..	171
	..	..	1	7	18	18	28	29	31	24	9	3	..	..	..	..	168	
Parotid Gland	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	3	3
Maxilla	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	2	..	4
	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	2	
Larynx	..	..	..	..	1	1	..	1	1	2	..	..	..	..	..	6	..	9
	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	3	
Bronchus	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	3
	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	2	
Ovary .	..		..	..	..	1	1	1	..	..	..	..	..	..	..	..	3	3
Neck .	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	2
	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	
Nasal Cavity	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1
Males .	..	..	3	5	9	17	26	38	37	27	19	9	3	3	1	197		
Females .	1	..	9	19	32	40	67	57	62	45	22	9	5	2	..		370	
Both Sexes	1	..	12	24	41	57	93	95	99	72	41	18	8	5	1			567

B.—*CASES OF SARCOMA TABULATED ACCORDING TO AGE AND SEX.*

Situation of Primary New Growth.	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to 60	61 to 65	66 to 70	71 to 75	76 to 80	81 to 85	M.	F.	Total.
Skin and Subcutaneous Tissue*	..	..	..	..	..	..	..	1	1	..	2	..	1	..	..	..	5	..	11
	..	..	..	..	..	..	1	2	..	..	1	1	1	..	..	..	..	6	
Bursæ	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	2	2
Bones:—Maxilla	1	1	..	..	..	..	1	..	..	..	..	..	1	1	..	..	5	..	6
	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	
Palate	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
Mandible	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	2	..	5
	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	3	
Humerus	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Innominate†	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	5
	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	3	
Femur	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	7
	..	..	2	..	..	2	1	..	..	..	..	1	..	..	..	..	..	6	
Tibia	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3
	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	2	
Fibula	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Muscles:—Deltoid	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	2
	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	
Pectoralis Major	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
Rectus Abdominis	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Rectus Femoris	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
Gluteus‡	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
Ischio Rectal Fossa	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Omentum	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	2	..	2
Retropharyngeal Tissue	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1
Lymphatic Glands	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	2	..	6
	..	..	1	..	..	1	..	..	1	..	1	..	..	..	..	..	..	4	
Dura Mater	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1
Stomach	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	2	..	2
Rectum	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	2
	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	
Kidney	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	3	..	4
	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	
Bladder	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	2
	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	

* Includes M 59 lip and M 46 scrotum. † Includes F 45 pelvis.
‡ Buttock.

Situation of Primary New Growth.	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to 60	61 to 65	66 to 70	71 to 75	76 to 80	81 to 85	M.	F.	Total.
Ovary	..	..	1	..	..	1	..	1	..	1	..	..	..	..	..	..	..	4	4
Uterus	..	..	..	..	..	..	..	..	1	3	1	..	1	..	..	..	..	6	6
Vagina	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1
Breast	..	..	..	..	..	..	1	4	4	1	1	1	..	2	..	..	..	14	14
Brain . . .	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2
	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	
Eye	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1
Bronchus . . .	..	..	..	..	..	1	..	..	..	..	1	..		..	..	..	..	2	2
Pleura	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1
Males . . .	2	2	2	1	..	3	1	3	3	1	3	5	3	1	..	1	31		
Females . . .	..	2	5	2	1	7	7	12	8	8	7	4	2	4	..	..		69	
Both Sexes . .	2	4	7	3	1	10	8	15	11	9	10	9	5	5	..	1			100

TABLE II.

SHEWING FREQUENCY OF SECONDARY DEPOSITS IN 327 CASES OF CARCINOMA EXAMINED AFTER DEATH.

Site of Primary growth.	No. of Post-mortem Examinations.	Lymph-glands.	Liver.	Lung.	Peritoneum.	Adrenal.	Kidney.	Pancreas.	Bones of Trunk.	Large Intestine.	Skin and Subcutaneous tissue.	Spleen.	Thyroid.	Stomach.	Bladder.	Heart.	Pleura.	Breast.	Bones of Limbs.	Gall-bladder.	Omentum.	Mesentery.	Bones of Head.	Ovary.	Other organs affected.
Lip	6	5	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	Tonsil.
Cheek	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	
Palate	3	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	
Tongne	32	12	2	4	..	1	1	..	..	..	..	2	1	..	..	..	1	..	..	..	..	..	..	..	Submaxillary salivary gland.
Œsophagus	15	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Stomach	31	12	9	2	4	1	..	5	..	..	..	..	..	2	..	..	..	..	..	..	2	..	..	1	Small intestine.
Duodenum	2	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Colon	9	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Rectum	38	13	13	8	2	1	2	2	..	1	..	..	2	..	..	1	..	..	..	..	..	..	..	1	Thoracic duct.
Omentum	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	
Liver	6	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Pancreas	7	1	1	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	
Kidney	3	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Bladder	9	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Vulva	4	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	
Uterus	100	38	17	9	4	2	..	1	1	..	1	3	..	..	2	1	..	..	..	1	2	1	..	18	Vermiform appendix.
Prostate	3	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Testicle.
Penis	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Testicle	1	1	1	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	
Scrotum	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Skin of Face and Scalp	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Breast	40	28	22	14	2	4	2	4	3	..	3	1	..	..	..	..	4	5	2	3	..	..	3	..	Pericardium 2, brain 1, cranial-aponeurosis 1, œsophagus 1.
Larynx	6	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	Œsophagus.
Bronchus	3	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Ovary	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	
	327	135	72	43	13	9	6	13	4	2	6	8	4	2	2	2	7	5	2	4	5	2	3	22	12

TABLE III.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
1 W.B.	C.R. 159 R.A. 54 P.M. 40/00	M	44	Carcinoma of lower lip, extending to floor of mouth, right side of neck, right side of cheek, right orbit, and bones of base of skull. Squamous-celled growth.	Right cervical lymph-glands.	.. ..	(ii) Body well nourished.	(i) July 20, '00 (ii) Aug. 9, '00	(i) 11 months. (ii) Removal of growth from lip Sept. 1899, recurrence in glands of neck and in cicatrix 3 months later; extensive operation, including removal of portion of mandible, April 1900 (Middlesex Hospital).
2 T.F.	C.R. 509 R.A. 201 P.M. 13/02	M	49	Carcinoma of lower lip, invading left side of tongue. Squamous-celled growth.	Left cervical lymph-glands, left tonsil, and left ary-epiglottic folds, lungs, liver.	*Heart:* old endocarditis of aortic valves. *Liver:* in condition of chronic congestion.	(i) Patent foramen ovale.	(i) Jan. 10, '02 (ii) Feb. 11, '02	
3 C.D.C.	C.R. 41 R.A. 13 P.M. 1/00	M	50	Carcinoma of lower lip (right side), extending to both cheeks, bones of orbit, and base of skull, and infiltrating pituitary body. Squamous-celled growth.	Sub-maxillary lymph-glands on both sides.	*Heart:* atrophy, with brown degeneration. Atheroma of arch of aorta. Fibroid degeneration of right testicle.	(ii) Much wasting of body.	(i) Dec. 20, '99 (ii) Feb. 27, '00	(i) 12 months.
4 H.W.	C.R. 236 R.A. 92 P.M. 76/00	M	64	Carcinoma of lower lip, extending to right cheek, nose, and mandible. Squamous-celled growth.	Sub-maxillary lymph-glands on both sides, right lung.	*Lungs:* puckered cicatrices in lower lobe of left side and lowest lobe of right. Calcareous nodule in thyroid gland. Fibroid degeneration of left testicle.	(i) Between each of the lumbar vertebræ there is a distinct joint, permitting of free movement. (ii) Very marked wasting of body.	(i) Nov. 10, '00 (ii) Nov. 22, '00	(i) 12 months.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
5 F.R.	C.R. 67 R.A. 21 P.M. 7/00	M	64	Carcinoma of lower lip, extending down left side of neck. Squamous-celled growth.	Nodule in subcutaneous tissue of chin.	*Lungs*: broncho-pneumonia on left side. *Heart*: weighs 17 ozs.; mitral and tricuspid valves incompetent. *Liver*: in condition of hypertrophic interstitial hepatitis. Advanced atheroma of entire thoracic aorta.	(ii) Body well nourished.	(i) Mar. 1, '00 (ii) Mar. 31, '00	(ii) Excision of growth on lip (before admission), recurrence 2 months.
6 G.W.	C.R. 253 R.A. 99 P.M. 81/00	M	82	Carcinoma of lip, extending to cheek and body of mandible. Squamous-celled growth.	Sub-maxillary lymph-glands on both sides.	*Lungs*: broncho-pneumonia on both sides, old pleural adhesions. *Heart*: atrophy, with brown degeneration; aortic valve atheromatous and incompetent. *Kidneys*: chronic interstitial nephritis.	(i) Foramen ovale patent. (ii) Some general wasting.	(i) Aug. 16, '00 (ii) Dec. 14, '00	(i) About 3 months.
7 R.L.	C.R. 75 R.A. 22 P.M. 8/00	M	47	Carcinoma of left cheek, extending to subcutaneous tissue and skin of neck. Squamous-celled growth.	Supra-sternal and anterior mediastinal lymph-glands.	*Lungs*: disseminated broncho-pneumonia. *Liver*: in condition of fatty degeneration (weight 55½ ozs.).	(ii) Much wasting of body.	(i) Nov. 28, '99 (ii) April 12, '00	(i) 6 months.
8 A.W.	C.R. 322 R.A. 133 P.M. 31/01	M	49	Carcinoma of soft palate, extending to tongue and hard palate. Squamous-celled growth.	Sub-maxillary lymph-glands.	*Lungs*: general bronchitis; broncho-pneumonia with recent pleuritis on left side. *Liver*: several small calculi in gall-bladder.	(ii) Considerable wasting of body.	(i) Nov. 14, '00 (ii) April 23, '01	(i) 6 months.
9 J.S.	C.R. 203 R.A. 78 P.M. 62/00	M	57	Carcinoma of soft palate, extending to root of tongue, pillars of fauces, epiglottis and larynx. Squamous-celled growth.	Left sub-maxillary lymph-gland; left lobe of thyroid.	*Lungs*: cicatrices at both apices, and recent infarcts in lower lobe of left side. *Heart*: thickening of, and old vegetations on, aortic cusps. *Spleen*: recent infarcts.	(ii) Some wasting of body.	(i) April 16, '00 (ii) Oct. 8, '00	(i) 4 months.

10 H.T.C.	C.R. 229 R.A. 90 P.M. 74/00	M	60	Carcinoma of roof of mouth. Squamous-celled growth.	.. ..	*Lungs* : broncho-pneumonia on both sides, with cicatrices at both apices, and old pleural adhesions. Sacculation of abdominal aorta close to origin of cœliac axis. Cystic enlargement of right lobe of thyroid. Old fracture of right tibia, union with deformity.	(ii) Much wasting of body.	(i) Aug. 11, '00 (ii) Nov. 13, '00	(i) **15 months.**
11 P.B.	C.R. 465 R.A. 183 P.M. 79/01	M	35	Carcinoma of floor of mouth, involving mandible. Squamous-celled growth.	*Left sub-maxillary lymph-gland.	*Lungs* : cicatrisation at both apices. *Testicles* : shew fibrotic change, with a small caseous area in the left one. Chronic ulcer of leg.	(i) Foramen ovale widely patent. (ii) Considerable wasting of body.	(i) July 24, '01 (ii) Dec. 13, '01	
12 E.S.	C.R. 546 R.A. 214 P.M. 28/02	M	35	Carcinoma of tongue, invading larynx, base of epiglottis, and arytenoid. Squamous-celled growth.	Thyroid gland, right lobe. *Sub-maxillary and cervical lymph-glands on both sides.	*Lungs* : emphysema, bronchitis, broncho-pneumonia, and at one place gangrene. *Liver* : seat of fatty degeneration (weight 41¼ ozs.). *Kidneys* : slightly granular.	(ii) Marked wasting of body.	(i) April 5, '02 (ii) April 13, '02	
13 W.H.R.	C.R. 268 R.A. 104 P.M. 2/01	M	37	Carcinoma of tongue. Squamous-celled growth.	Sub-maxillary lymph-glands.	*Lungs* : cicatrisation at both apices; old pleural adhesions. *Liver* : slight degree of fatty degeneration.	(i) Foramen ovale patent. (ii) Much wasting of body.	(i) Oct. 13, '00 (ii) Jan. 13, '01	
14 F.D.	C.R. 464 R.B. 284 P.M. 213/01	M	39	Carcinoma of tongue, extending to larynx. Squamous-celled growth.	Cervical lymph-glands.	*Lungs* : Broncho-pneumonia both sides, with areas of gangrene. *Kidneys* : shew fatty degeneration.	.. .. ..	(i) Nov. 23, '01 (ii) Dec. 11, '01	
15 W.B.	C.R. 159 R.A. 54 P.M. 40/00	M	44	Carcinoma of tongue, right side, extending to pharynx and larynx. Squamous-celled growth.	Cervical lymph-glands.	*Lungs* : emphysema.	.. .. ..	(i) July 20, '00 (ii) Aug. 9, '00	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
16 A.V.S.	C.R. 622 R.A. 244 P.M. 58/02	M	44	Carcinoma of tongue, right side, invading mandible and soft palate. Squamous-celled growth.	*Cervical lymph-glands, right side.	*Lungs :* broncho-pneumonia of right middle lobe. *Heart :* in condition of brown atrophy (weight $6\frac{1}{4}$ ozs.).	(i) Right testicle small, situated in abdomen near internal abdominal ring. (ii) Body considerably wasted.	(i) May 8, '02 (ii) Aug. 5, '02	
17 W.F.	C.R. 422 R.A. 168 P.M. 66/01	M	45	Carcinoma of tongue, involving fauces, soft palate, upper part of œsophagus, aryepiglottic folds, submaxillary and salivary lymph-glands. Squamous-celled growth.	Cervical lymph-glands.	*Lungs :* cavity filled with caseous material and cicatrisation at left apex. Slight degree of atheroma of aortic valves. *Kidneys :* granular.	(i) Foramen ovale patent.	(i) Oct. 2, '01 (ii) Oct. 16, '01	
18 W.G.H.	C.R. 613 R.A. 241 P.M. 55/02	M	45	Carcinoma of tongue (posterior half). Squamous-celled growth.	.. ..	*Lungs :* broncho-pneumonia; abscess in left upper lobe. *Bladder :* sacculus of wall. Irregular calcareous masses in mesentery.	(ii) Marked wasting of body.	(i) June 20, '02 (ii) July 20, '02	
19 G.N.	C.R. 182 R.A. 68 P.M. 53/00	M	47	Carcinoma of tongue, extending to floor of mouth. Squamous-celled growth.	Cervical and *bronchial lymph-glands, lungs, liver, kidneys.	.. ..	.. .. ..	(i) Sept. 11, '00 (ii) Sept. 14, '00	(ii) Excision of left half of tongue June 16, 1900 (Charing Cross Hospital).
20 E.N.	C.R. 74 R.B. 53 P.M. 89/00	M	48	Carcinoma of tongue and floor of mouth. Squamous-celled growth.	.. ..	*Lungs :* bronchitis and broncho-pneumonia. *Liver :* fatty.	.. .. ..	(i) April 6, '00 (ii) April 12, '00	(ii) Recent removal of tongue and central part of mandible.

21 J.W.	C.R. 522 R.A. 204 P.M. 18/02	M	50	Carcinoma of tongue, involving epiglottis. Squamous-celled growth.	.. ..	*Lungs :* broncho-pneumonia. *Liver :* cirrhosis. A lymph-gland situated immediately above pancreas is dark brown owing to the presence of collections of large deeply pigmented cells in it.	(ii) Marked wasting of body.	(i) July 8, '01 (ii) Mar. 1, '02
22 J.G.	C.R. 600 R.A. 236 P.M. 50/02	M	51	Carcinoma of tongue (posterior part of left side). Squamous-celled growth.	Cervical lymph-gland.	*Lungs :* bronchitis and broncho-pneumonia, pleural adhesions. *Heart :* in condition of brown atrophy (weight 6¼ ozs.). *Liver :* in condition of chronic congestion (weight 46¼ ozs.).	(ii) Marked wasting of body.	(i) Mar. 6, '02 (ii) July 4, '02
23 J.R.	C.R. 5 R.A. 4 P.M. 14/00	M	52	Carcinoma of tongue (right side). Squamous-celled growth.	Cervical lymph-glands (right side).	*Lungs :* emphysema; pleural adhesions right side. *Kidneys :* fatty; congested.	.. .. ..	(i) Jan. 8, '00 (ii) Jan. 11, '00
24 T.D.	C.R. 683 R.A. 262 P.M. 80/02	M	52	Carcinoma of floor of mouth (left side), involving root of tongue. Squamous-celled growth.	Frænum linguæ.	Slight œdema over left arytenoid cartilage. *Lungs :* bronchitis; broncho-pneumonia. Cicatrices at each apex. Pericardial adhesions. *Kidneys :* left organ deeply congested. Small areas of fat necrosis behind pancreas, which is somewhat darker than usual.	(i) Cæcum lies entirely in pelvic cavity. (ii) Extreme wasting of body.	(i) Sept. 26, '02 (ii) Nov. 6, '02
25 R.J.	C.R. 599 R.A. 235 P.M. 48/02	M	53	Carcinoma of floor of mouth (below tip). Squamous-celled growth.	*Sub-maxillary lymph-glands.	*Larynx :* œdema of arytenoids. Gastroptosis. Termination of duodenum is seen above the lesser curvature of the stomach.	(i) Foramen ovale patent. (ii) Much wasting of body.	(i) April 23, '02 (ii) July 1, '02
26 R.A.	C.R. 661 R.B. 415 P.M. 223/02	M	53	Carcinoma of tongue. Squamous-celled growth.	.. ..	*Lungs :* bronchitis throughout, some fluid in both pleuræ. *Heart :* dilated.	.. .. ..	(i) Sept. 29, '02 (ii) Nov. 9, 02
27 W.S.	C.R. 576 R.B. 355 P.M. 60/02	M	54	Carcinoma of tongue (recurrence after excision), invading tissues of neck. Squamous-celled growth.	Cervical lymph-glands on right side. Spleen (?)	*Lungs :* emphysema.	.. .. ..	(i) July 22, '02 (ii) Aug. 12, '02

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
28 A.L.	C.R. 96 R.A. 30 P.M. 16/00	M	56	Carcinoma of tongue, extending to floor of mouth and front of neck. Squamous-celled growth.	*Sub-maxillary, cervical, and supra-clavicular lymph-glands on right side.	*Lungs:* bronchitis. *Heart:* atheroma of mitral valve. *Kidneys:* chronic interstitial nephritis.	(ii) Considerable wasting of body.	(i) April 21, '00 (ii) May 17, '00	(i) 6 months.
29 H.H.	C.R. 649 R.A. 252 P.M. 69/02	M	56	Carcinoma of floor of mouth (left side). Squamous-celled growth.	*Cervical lymph-glands on left side. *Pleura, Lungs, Liver, *Spleen, *Subcutaneous tissue.	*Lungs:* œdema; blood-stained fluid in left pleura. *Stomach:* cicatrix of old ulcer on posterior wall. *Liver:* in state of fatty degeneration (weight 71 ozs.). Spleen enlarged.	(i) Persistent ostium primum as a foramen 6 mm. in diameter in inter-auricular septum. Foramen ovale patent. (ii) Body wasted.	(i) Sept. 5, '02 (ii) Sept. 22, '02	
30 G.G.	C.R. 87 R.A. 137 P.M. 34/01	M	57	Carcinoma of right side of tongue. Squamous-celled growth.	Sub-maxillary lymph-glands on right side; one cervical gland left side.	*Lungs:* bronchitis of both lower lobes; cicatrices in apex of both upper lobes. *Heart:* one aortic cusp thickened, mitral and tricuspid valves dilated.	(i) Foramen ovale patent. (ii) Much wasting of body.	(i) Mar. 12, '01 (ii) May 21, '01	(ii) Excision of right side of tongue Mar. 18, 1900; removal of right sub-maxillary glands May 1900; recurrence in site of operation of May 1900 about 4 months previous.
31 W.L.	C.R. 99 R.A. 32 P.M. 18/00	M	57	Carcinoma of tongue, extending to floor of mouth. Squamous-celled growth.	Sub-maxillary and tracheal lymph-glands; upper lobe of left lung.	*Lungs:* bronchitis. *Heart:* dilated, musculature flabby, mitral and tricuspid valves dilated. *Liver:* shews some fatty degeneration.	(ii) No marked wasting of body.	(i) Mar. 22, '00 (ii) May 26, '00	(i) 6 months.
32 W.C.	C.R. 389 R.A. 155 P.M. 53/01	M	57	Carcinoma of floor of mouth. Squamous-celled growth.	Cervical lymph-glands.	*Lungs:* large cavity with ragged walls at left apex; general broncho-pneumonia. *Liver:* shews fatty degeneration (weight $45\frac{3}{4}$ ozs.). The right adrenal gland is replaced by a cyst of about the size of a small walnut, containing bloody fluid.	(ii) Much wasting of body.	(i) June 24, '01 (ii) Aug. 18, '01	

33 S.S.	C.R. 497 R.A. 195 P.M. 7/02	M	57	Carcinoma of tongue and floor of mouth. Squamous-celled growth.	Sub-maxillary and cervical lymph-glands. Lung.	*Lungs:* bullous; emphysema. *Kidneys:* granular. *Bladder:* sacculated.	(ii) Body well nourished.	(i) Oct. 22, '01 (ii) Jan. 28, '02	
34 W.S.	C.R. 563 R.A. 223 P.M. 37/02	M	57	Carcinoma of floor of mouth on right side, invading mandible and face. Squamous-celled growth.	.. ..	*Lungs:* emphysema; cicatrices at each apex. *Heart:* fenestration of one of the cusps of pulmonary valve producing slight incompetence. *Liver:* seat of some fatty degeneration (weight 39 ozs.).	(ii) Marked wasting of body.	(i) Dec. 26, '01 (ii) May 18, '02	
35 E.P.	C.R. 193 R.A. 143 P.M. 41/01	M	58	Carcinoma of tongue (right side). Squamous-celled growth.	Sub-maxillary and cervical lymph-glands (right side); lower lobe of left lung.	*Lungs:* bronchitis. *Heart:* atheroma and incompetence of aortic valve; mitral and tricuspid valves dilated. *Liver:* fatty degeneration (weight 53 ozs.). Two adenoid polypi in rectum.	(i) Well-marked mesocolon on left side. (ii) No obvious wasting of body. The right half of the tongue had been removed; no recurrence of primary growth.	(i) April 29, '01 (ii) June 21, '01	(ii) Right half of tongue removed Sep. 1900, and glands on right side of neck Jan. 1901.
36 F.A.	C.R. 198 R.B. 121 P.M. 228/00	M	59	Carcinoma of tongue (right side). Squamous-celled growth.	.. ..	*Lungs:* congested; emphysema; bronchitis. *Heart:* enlarged (18¼ ozs.); chronic thickening of aortic and mitral valves; atheroma of first part of aorta. *Liver:* enlarged (80 ozs.); fatty and fibrous. *Kidneys:* enlarged.	(ii) Recent incision under lower jaw (right side).	(i) Sept. 22, '00 (ii) Oct. 5, '00	(ii) Removal of right half of tongue.
37 J.R.	C.R 65 R.B. 46 P.M. 82/00	M	60	Carcinoma of tongue (left side). Squamous-celled growth.	.. ..	*Lungs:* Broncho-pneumonia. *Liver:* pale yellowish in colour. *Kidney:* pale, shewed fibroid changes.	.. .. ..	(i) Mar. 29, '00 (ii) April 4, '00	(ii) Recent removal of tongue and part of jaw.
38 W.J.	C.R. 248 R.B. 151 P.M. 130/01	M	60	Carcinoma of tongue (removed). Squamous-celled growth.	Right cervical lymph-glands.	*Lungs:* bronchitis. *Heart:* atrophied. Fibroid change both testicles.	.. .. ..	(i) June 7, '01 (ii) June 9, '01	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
39 H.F.	C.R. 426 R.A. 170 P.M. 68/01	M	60	Carcinoma of back part of tongue, extending into left submaxillary fossa. Squamous-celled growth.	*Sub-maxillary lymph-glands.	*Lungs :* right pleural empyema, with collapse of lung; emphysema of left lung. *Heart :* recent pericarditis.	(i) Foramen ovale not quite closed. (ii) Considerable wasting of body.	(i) Aug. 10, '01 (ii) Oct. 28, '01.	
40 A.P.	C.R. 701 R.A. 268 P.M. 87/02	M	61	Carcinoma of floor of mouth (right side) invading mandible. Squamous-celled growth.	Liver; *suprarenal capsule.	*Lungs:* emphysema; bronchitis. *Heart :* atheroma of aortic and mitral valves; pericardium universally adherent. Large irreducible inguinal hernia on left side. *Spleen :* old infarct. Ascites.	(ii) Globe of left eye absent.	(i) Sept. 27, '02 (ii) Nov. 23, '02	
41 G. de F.	C.R. 140 R.B. 94 P.M. 164/00	M	62	Carcinoma of floor of mouth. Squamous-celled growth.	.. ..	*Lungs :* œdematous. *Heart :* muscle soft. *Liver :* fatty.	.. .. ..	(i) July 19, '00 (ii) July 22, '00	(ii) Recent removal of part of mandible at symphysis, tip of tongue, and floor of mouth.
42 A.J.P.	C.R. 442 R.B. 271 P.M. 232/01	M	65	Carcinoma of tongue. Squamous-celled growth.	.. ..	Incision of recent operation. *Lungs :* broncho-pneumonia both sides; cicatrisation apex of left lobe; right pleural effusion. *Heart :* atheroma of first part of aorta. *Kidneys :* shew fatty change.	.. .. ..	(i) Nov. 7, '01 (ii) Nov. 18, '01	
43 C.S.	C.R. 178 R.A. 65 P.M. 50/00	M	67	Carcinoma of tongue. Squamous-celled growth.	*Sub-maxillary and cervical lymph-glands.	Œdema of larynx. *Liver :* fatty degeneration, very friable (weight 35¾ ozs.).	.. .. ..	(i) Jan. 22, '00 (ii) Sept. 9, '00	(ii) Excision of tongue Oct. 1899 (Middlesex Hospital).

44 J.R.	C.R. 358 R.A. 145 P.M. 43/01	M	71	Carcinoma of floor of mouth, invading mandible. Squamous-celled growth.	.. ..	*Lung:* small calcified nodule at left apex. *Heart:* mitral and tricuspid valves dilated. *Kidney:* deep cicatrix in cortex of right gland.	(i) Foramen ovale patent. Left testicle is absent; there is a dermoid cyst lying over the right internal abdominal ring. (ii) No marked wasting of body.	(i) June 1, '01 (ii) June 25, '01	
45 C.R.	C.R. 557 R.A. 222 P.M. 36/02	M	74	Carcinoma of floor of mouth, in front and beneath left portion of tip of tongue, invading mandible. Squamous-celled growth.	.. ..	*Lungs:* bronchitis and bronchopneumonia; pleural adhesions on left side. *Liver:* two small (? retention) cysts. *Pancreas:* very hard. *Kidneys:* granular. *Prostate:* enlarged "middle lobe."	(i) Foramen ovale patent. (ii) Body well nourished.	(i) Dec. 19, '01 (ii) May 9, '02	
46 T.P.	C.R. 177 R.A. 64 P.M. 49/00	M	78	Carcinoma of floor of mouth. Squamous-celled growth.	.. ..	*Liver:* numerous small calculi in bladder. Large subperiosteal abscess on inner side of ramus of mandible.	(ii) Body well nourished.	(i) Aug. 30, '00 (ii) Sept. 9, '00	(i) 3 months.
47 K.T.	C.R. 61 R.A. 20 P.M. 6/00	F	49	Carcinoma of tongue, extending to palate and pharynx. Squamous-celled growth.	.. ..	*Lungs:* disseminated bronchopneumonia. Atheroma of ascending portion of aorta. *Liver:* two calculi in bladder. An interstitial fibro-myoma of uterus.	(i) Dermoid cyst in right ovary. (ii) Body much wasted.	(i) Nov. 27, '99 (ii) Mar. 25, '00	(i) 10 months. (ii) Excision of tongue.
48 M.A.	C.R. 347 R.B. 208 P.M. 126/01	F	61	Carcinoma of tongue removed. Squamous-celled growth.	.. ..	Incision of recent operation. *Liver:* fatty. *Kidneys:* some chronic interstitial nephritis. *Ovaries:* fibrotic and calcified.	.. .. ..	(i) May 7, '01 (ii) June 5, '01	
49 F.M.	C.R. 1 R.A. 1 P.M. 6/00	F	64	Carcinoma of tongue (right side removed); recurrence in left side and in root of tongue. Squamous-celled growth.	Lymph-glands, left side of neck.	*Lungs:* congested. Sub-peritoneal fibro-myoma of uterus.	.. .. ..	(i) Dec. 28, '99 (ii) Jan. 3, '00	(ii) Removal of right half of tongue.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
50 W.B.	C.R. 663 R.A. 255 P.M. 74/02	M	45	Carcinoma of pharynx (right side). Squamous-celled growth.	*Cervical lymph-glands.	*Lungs:* pneumonic consolidation of a few lobules. Cicatrisation of apices.	(i) Transverse colon forms a **U** shaped loop reaching to pelvis. (ii) Much wasting of body.	(i) June 3, '02 (ii) Oct. 7, '02	
51 J.U.	C.R. 697 R.A. 266 P.M. 84/02	M	55	Carcinoma of pharyngeal wall (right side). Squamous-celled growth.	*Cervical lymph-glands (right side).	*Larynx:* œdema of right thyro-epiglottidean fold. *Lungs:* emphysema at margins. *Heart:* stenosis of mitral valve, atheroma of aortic and tricuspid valves. Organ hypertrophied (weight 12½ ozs.). *Liver:* in state of slight fatty degeneration (weight 57½ ozs.). *Pancreas:* fatty infiltration. *Kidneys:* shew fatty change, with fibrosis.	(ii) Body very stout, diffuse lipomatous condition of neck, lipoma above pubes.	(i) Sept. 25, '02 (ii) Nov. 22, '02	
52 C.N.	C.R. 548 R.A. 216 P.M. 30/02	M	58	Carcinoma of neck (? pharynx) (right side), involving all the right cervical lymph-glands. Squamous-celled growth.	.. ..	*Lungs:* œdema and bronchitis.	(ii) Body well nourished.	(i) Mar. 21, '02 (ii) April 16, '02	
53 A.W.	C.R. 652 R.A. 253 P.M. 71/02	M	48	Carcinoma of œsophagus (lower third), invading trachealis and perforating trachea. Squamous-celled carcinoma.	Posterior mediastinal lymph-gland.	*Lungs:* broncho-pneumonia.	(ii) Body much wasted. One of the right costal cartilages (about the 8th) has apparently been cleanly divided or fractured, and the ends overlapped and fixed by formation of cancellous bone.	(i) Sept. 1, '02 (ii) Sept. 26, '02	

54 A.J.R.	C.R. 345 R.B. 207 P.M. 121/01	M	52	Carcinoma of œsophagus. Squamous-celled growth.	Cervical lymph-glands (both sides).	*Lungs :* broncho-pneumonia (both sides).	(ii) Growth situated opposite thyroid.	(i) April 9, '01 (ii) June 2, '01	
55 M.R.	C.R. 597 R.B. 370 P.M. 124/02	M	53	Carcinoma of the œsophagus, ulcerating growth at level of bifurcation of the trachea, fistula leading into apex of lower lobe right lung. Squamous-celled growth.	.. ..	*Lungs :* fibrosis and bronchiectasis of apex of lower lobe of right lung, which communicates with œsophagus by a fistula; broncho-pneumonia of both lungs.	(ii) Body wasted.	(i) April 15, '02 (ii) June 29, '02	(ii) Gastrostomy.
56 W.S.	C.R. 540 R.B. 335 P.M. 65/02	M	54	Carcinoma of the œsophagus. A soft ulcerating growth almost blocks the lower end. Squamous-celled growth.	.. ..	.. ..	.. .. ..	(i) Feb. 27, '02 (ii) Mar. 30, '02	(ii) Gastrostomy.
57 G.G.	C.R. 447 R.B. 274 P.M. 233/01	M	55	Carcinoma of œsophagus. Squamous-celled growth.	Cervical lymph-glands (both sides), apex of left lung, liver, left kidney.	*Lungs :* broncho-pneumonia (both sides). *Heart :* muscle soft. *Kidneys :* chronic interstitial nephritis.	(ii) Growth situated opposite bifurcation of the trachea.	(i) Nov. 12, '01 (ii) Nov. 19, '01	
58 E.A.	C.R. 492 R.B. 304 P.M. 12/02	M	55	Carcinoma of the middle portion of the œsophagus, partially blocking the lumen, ulcerated and all but perforating the trachea. Squamous-celled growth.	Right cervical lymph-glands.	*Lungs :* septic pneumonia, exudation in pleura on both sides. *Heart :* muscle soft.	.. .. ..	(i) July 2, '01 (ii) Jan. 20, '02	
59 J.F.	C.R. 30 R.B. 21 P.M. 36/00	M	57	Carcinoma of œsophagus, growth $1\frac{1}{2}$ inches from upper end. Squamous-celled growth.	Lymph-glands.	*Lungs :* septic pneumonia. *Heart :* some thickening of mitral valves. *Kidneys :* congested and fatty.	(ii) Body wasted.	(i) Nov. 30, '99 (ii) Feb. 12, '00	(ii) Gastrostomy.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
60 J.D.	C.R. 373 R.A. 151 P.M. 49 01	M	59	Carcinoma of lower third of œsophagus, extending by contiguity of tissue into lumen of right bronchus. Squamous-celled growth.	Right supraclavicular glands, extending into clavicle and invading right pleura at apex.	*Lungs :* collapse of right upper lobe; haemorrhage into air passages of the right middle and lowest lobe; puckered cicatrix in substance of lower lobe of left lung. Atheroma of aortic valves. *Liver :* fatty degeneration (weight 52¾ ozs.)	(ii) Body fairly well nourished.	(i) April 3, '01 (ii) July 23, '01	
61 A.B.	C.R. 702 R.B. 442 P.M. 236/02	M	65	Carcinoma of the œsophagus at level of bifurcation of trachea; ulcerating into right and left bronchus. Squamous-celled growth.	Lymph-glands.	*Lungs :* purulent bronchitis of both organs.	.. .. ..	(i) Nov. 14, '02 (ii) Nov. 24, '02	
62 W.M.J.	C.R. 628 R.A. 273 P.M. 63/02	M	66	Carcinoma of œsophagus (upper end). Squamous-celled growth.	Lymph-gland in small omentum.	*Lungs :* emphysematous.	(ii) Body very wasted.	(i) Aug. 14, '02 (ii) Aug. 22, 02.	
63 F.B.	C.R. 520 R.B. 322 P.M. 41/02	F	61	Carcinoma of œsophagus about 1½ inches below the level of the bifurcation of the trachea. Squamous-celled growth.	Lymph-glands.	.. ..	.. .. ..	(i) Feb. 6, '02 (ii) Feb. 25, '02	
64 G.C.	C.R. 10 R.B. 5 P.M. 21/00	M	54	Carcinoma of œsophagus, causing stricture opposite bifurcation of trachea; communication between œsophagus and right bronchus. Columnar-celled growth.	.. ..	*Lungs :* extensive bronchopneumonia. *Heart :* mitral valve thickened. Atheroma of first part of aorta.	.. .. ..	(i) Jan. 13, '00 (ii) Jan. 23, '00	

65 S.K.	C.R. 325 R.B. 191 P.M. 99/01	M	61	Carcinoma of the œsophagus. Columnar-celled growth.	.. ..	Sinuses in left side of neck. *Lungs:* septic pneumonia in both. Left upper lobe gangrenous, communicates with sinuses. *Heart:* some calcareous deposits on aorta; excess of fluid in pericardium.	(ii) Growth just above level of bifurcation of trachea.	(i) April 16, '01 (ii) April 28, '01
66 R.S	C.R 501 R.B. 311 P.M. 20/02	M	42	Carcinoma of stomach (cardiac end of lesser curvature). Squamous-celled growth.	Lower end of œsophagus.	*Heart:* fatty. *Liver:* pale and anæmic. *Kidneys:* pale. Quantity of altered blood in stomach and intestines.	.. .. ..	(i) Jan. 25, '02 (ii) Jan. 31, '02.
67 W.W.	C.R. 321 R.B. 188 P.M. 97/01	M	45	Carcinoma of stomach (pylorus), extending to omentum and peritoneum. Squamous-celled growth.	.. ..	*Liver:* fatty degeneration. *Kidneys:* fatty degeneration.	.. .. ..	(i) Feb. 27, '01 (ii) April 22, '01
68 A.S.	C.R. 681 R.B. 429 P.M. 216/02	M	30	Carcinoma of stomach (pylorus). Spheroidal-celled carcinoma.	Liver and lymph-glands behind stomach.	Lungs congested.	.. .. ..	(i) Oct. 17, '02 (ii) Nov. 3, '02
69 D.O'G.	C.R. 532 R.A. 208 P.M. 22/02	M	35	Carcinoma of stomach (pyloric end and lesser curvature), involving liver. Spheroidal-celled growth.	Portal lymph-glands.	*Liver:* in condition of chronic congestion and deeply bile-stained. Gall-bladder represented by a small closed sac containing a little clear fluid.	(i) Left kidney less than 1 inch long (weighs under ¼ oz.). (ii) Great wasting of body; intense jaundice. Efficient gastro-duodenostomy.	(i) Nov. 18, '01 (ii) Mar. 16, '02
70 P.B.	C.R. 249 R.B. 152 P.M. 275/00	M	37	Carcinoma of stomach (near cardiac end).	Abdominal and thoracic lymph-glands; left lobe of cerebellum; left adrenal.	*Lungs:* deeply congested. Some atheroma of aorta.	.. .. ..	(i) Nov. 13, '00 (ii) Dec. 10, '00

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71 T.R.	C.R. 585 R.B. 362 P.M. 113/02	M	50	Carcinoma of stomach; diffuse, infiltrating pancreas, transverse colon and omentum. Spheroidal-celled growth.	Right kidney and in lymph-glands.	.. ..	.. .. ..	(i) Feb. 27, '02 (ii) June 14, '02	
72 G.B.	C.R. 720 R.B. 457 P.M. 254/02	M	50	Carcinoma of stomach (near pylorus), involving the pancreas. Spheroidal-celled growth.	Liver; peritoneum.	.. ..	.. .. ..	(i) Nov. 14, '02 (ii) Dec. 15, '02	
73 R.S.	C.R. 444 R.B. 272 P.M. 230/01	M	53	Carcinoma of stomach (pylorus). Spheroidal-celled growth.	Liver.	*Heart:* dilated, aortic valve incompetent. *Kidneys:* enlarged and pale.	.. .. ..	(i) Sept. 24, '01 (ii) Nov. 15, '01	
74 J.E.	C.R. 114 R.A. 37 P.M. 23/00	M	54	Carcinoma of stomach (pylorus). Spheroidal-celled growth.	Liver, pancreas, *portal lymph-glands.	*Heart:* minute vegetation on one aortic cusp. *Liver:* in condition of chronic congestion.	(ii) Considerable wasting of body; deep jaundice.	(i) May 21, '00 (ii) June 12, '00	
75 E.A.	C.R. 506 R.B. 312 P.M. 24/02	M	57	Carcinoma of stomach (cardiac end), involving the body of the stomach extensively. Spheroidal-celled growth.	Liver; right adrenal; lymph-glands.	.. ..	.. .. ..	(i) Jan. 18, '02 (ii) Feb. 4, '02	
76 F.S.	C.R. 136 R.B. 91 P.M. 157/00	M	60	Carcinoma of stomach (cardiac end). Spheroidal-celled growth.	Cœliac lymph-glands. Liver.	*Lungs:* emphysema and congestion. *Heart:* small.	.. .. ..	(i) June 25, '00 (ii) July 16, '00	

77 W.D.	C.R. 366 R.B. 221 P.M. 145/01	M	60	Carcinoma of stomach (pylorus). Spheroidal-celled growth.	Liver.	Stomach much dilated. *Lungs :* œdematous.	.. .. ..	(i) June 29, '01 (ii) July 5, '01
78 R.T.	C.R. 283 R.B. 171 P.M. 43/01	M	61	Carcinoma of stomach. Spheroidal-celled growth.	Cœliac lymph-glands.	*Heart :* shews fatty degeneration. *Kidneys :* chronic interstitial nephritis.	.. .. ..	(i) Jan. 29, '01 (ii) Feb. 10, '01
79 S.E.	C.R. 315 R B. 183 P.M. 93/01	M	66	Carcinoma of stomach. Spheroidal-celled growth.	.. ..	Cicatrix of recent pylorectomy, all growth removed. *Lungs :* emphysematous.	.. .. ..	(i) April 1, '01 (ii) April 19, '01
80 W.E.	C.R. 626 R.B. 388 P.M. 156/02	M	70	Carcinoma of stomach; stenosing pylorus. Stomach dilated. Spheroidal-celled growth.	Peritoneum.	*Heart :* dilated. *Liver :* small; shewed fibrous and fatty changes.	.. .. ..	(i) July 21, '02 (ii) Aug. 13, '02
81 J.B.	C.R. 119 R.A. 39 P.M. 25/00	F	20	Carcinoma of stomach (pylorus). Spheroidal-celled growth, with colloid degeneration.	Lungs, visceral peritoneum, *mesentery, posterior, mediastinal, and *lumbar lymph-glands, ovary.	*Liver :* fatty degeneration. *Kidneys :* several hæmorrhagic infarcts.	(ii) Considerable wasting of body.	(i) Mar. 10, '00 (ii) June 17, '00
82 E.E.	C.R. 155 R.B. 103 P.M. 178/00	F	35	Carcinoma of stomach (pylorus). Spheroidal-celled growth.	.. ..	*Lungs :* small œdematous, fluid in both pleural cavities. *Liver :* congested, somewhat fatty. *Kidneys :* congested, capsules adherent.	.. .. ..	(i) Aug. 5, '00 (ii) Aug. 6, '00
83 M.E.H.	C.R. 570 R.B. 350 P.M. 90/02	F	40	Carcinoma of stomach (pylorus). The bile ducts were involved and stenosed. Spheroidal-celled growth.	Pancreas, adrenals, and lymph-glands.	.. ..	.. .. ..	(i) May 1, '02 (ii) May 24, '02

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
84 E.F.	C.R. 437 R.B. 267 P.M. 222/01	F	57	Carcinoma of stomach (pylorus). Spheroidal-celled growth.	Mesenteric and aortic lymph-glands, liver, parietal peritoneum.	*Heart:* atrophied.	.. .. ..	(i) Oct. 28, '01 (ii) Nov. 9, '01	
85 E.B.	C.R. 571 R.A. 227 P.M. 41/02	F	62	Carcinoma of stomach (middle of lesser curvature), constricting the organ to form two parts, communicating with each other by an opening $\frac{1}{2}$ inch in diameter. Spheroidal-celled growth.	.. ..	*Lungs:* extensive excavation of both upper lobes. Cavities and grey miliary tubercles in lower lobes. Firm pleural adhesions at each apex. On right side is a calcified layer of old exudation. *Heart:* in condition of brown atrophy (weight $4\frac{1}{2}$ ozs.). *Liver:* caseating hydatid cyst in right lobe. Partial distension of lower part of thoracic duct.	(ii) Great wasting of body.	(i) Jan. 7, '02 (ii) May 26, '02	
86 W.C.	C.R. 553 R.A. 220 P.M. 34/02	M	45	Carcinoma of stomach (lesser curvature) invading left lobe of liver. Columnar-celled growth.	Peritoneum.	*Lungs:* œdema and bronchitis. *Heart:* in condition of brown atrophy (weight $7\frac{3}{4}$ ozs.). *Kidneys:* granular.	(i) Foramen ovale patent. (ii) Marked wasting of body.	(i) Mar. 17, '02 (ii) April 23, '02	
87 A.C.	C.R. 80 R.A. 24 P.M. 10/00	M	53	Carcinoma of stomach (pylorus) invading transverse colon. Columnar-celled growth.	Liver, *lungs, *mesenteric, and *portal lymph-glands.	.. ..	(i) Foramen ovale patent. (ii) Considerable wasting of body; jaundice.	(i) Feb. 25, '00 (ii) April 19, '00	
88 G.B.	C.R. 583 R.B. 360 P.M. 111/02	M	55	Carcinoma of stomach (pyloric end). Columnar-celled growth.	Liver, retroperitoneal lymph-glands.	*Lungs:* œdematous. Acute cystitis.	.. .. ..	(i) May 30, '02 (ii) June 11, '02	

89 G.E.	C.R. 120 R.B. 81 P.M. 127/00	M	56	Carcinoma of stomach (pyloric end). Columnar-celled growth.	Lumbar and portal lymph-glands (latter compressing common bile duct), liver, omentum.	*Lungs:* emphysema, congestion. *Spleen:* enlarged, congested and firm.	(ii) Body wasted; slight jaundice.	(i) April 9, '00 (ii) June 16, '00
90 H.W.	C.R. 445 R.B. 273 P.M. 231/01	M	64	Carcinoma of stomach (pylorus). Columnar-celled growth.	.. ..	*Lungs:* disseminated; bronchopneumonia; emphysema. *Heart:* small; atheroma of aorta. *Liver:* congested and fatty.	.. .. ..	(i) Oct. 30, '01 (ii) Nov. 16, '01
91 A.W.	C.R. 147 R.B. 99 P.M. 171/00		48	Carcinoma of stomach. Columnar-celled growth.	Lymph-glands near stomach.	*Lungs:* congested, right pleura very adherent. *Heart:* very small ($5\frac{1}{2}$ ozs.). *Liver:* capsule thickened.	(ii) Body wasted. Ascites (200 ozs.).	(i) July 22, '00 (ii) July 28, '00
92 J.H.	C.R. 175 R.B. 112 P.M. 209/00	F	50	Carcinoma of stomach (pylorus); stomach dilated, with hypertrophy of walls. Columnar-celled growth.	.. ..	*Lungs:* emphysema and œdema; old cavity at left apex. *Liver:* fatty. *Kidneys:* fatty.	.. .. ..	(i) Aug. 20, '00 (ii) Sept. 8, '00
93 E.L.	C.R. 588 R.A. 230 P.M. 44/02	F	59	Carcinoma of stomach, invading commencement of duodenum. Columnar-celled growth.	Stomach wall, lumbar and supraclavicular (especially left) lymph-glands.	*Lungs:* œdema; cicatrices at each apex. *Heart:* in condition of brown atrophy (weight $6\frac{3}{4}$ ozs.). *Liver:* in condition of fatty degeneration (weight $37\frac{3}{4}$ ozs.). Small nodulated calculi in gall bladder. *Kidneys:* granular. Thrombosis of both external iliac veins.	(i) Foramen ovale patent. (ii) Some wasting of body; considerable œdema of both legs.	(i) June 9, '02 (ii) June 18, '02
94 B.F.	C.R. 596 R.B. 369 P.M. 121/02	F	61	Carcinoma of stomach (lesser curvature). Columnar-celled carcinoma.	Liver, intestine.	.. ..	.. .. ..	(i) May 13, '02 (ii) June 28, '02
95 M.G.	C.R. 260 R.B. 158 P.M. 1/01	F	63	Carcinoma of stomach (perforation). Columnar-celled growth.	.. ..	*Heart:* atrophied. *Liver:* atrophied. General purulent peritonitis.	.. .. ..	(i) Jan. 7, '01 (ii) Jan. 7, '01

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96 S.D.	C.R. 547 R.A. 215 P.M. 29/02	F	64	Carcinoma of stomach (lesser curvature), invading omentum and pancreas. Columnar-celled growth.	Stomach wall (greater curvature), liver, pancreas, portal lymph-glands.	*Lungs:* emphysema and œdema. *Liver:* in condition of chronic congestion. Several non-facetted calculi in gall-bladder. *Uterus:* drawn over to left side; mucous polypi in cervix and a cyst in the wall of cervix. Thrombosis of inferior vena cava and both common iliac veins. Reddening of intima of vessels in all parts of the body, and of endocardium.	(ii) Considerable wasting; both legs much swollen.	(i) Nov. 30, '01 (ii) April 14, '02	
97 M.G.	C.R. 453 R.A. 178 P.M. 74/01	F	70	Carcinoma of stomach, involving the whole circumference of viscus. Columnar-celled growth.	In mesentery along the intestinal attachment.	*Lungs:* emphysema; pleura at both apices thickened; caseous nodule in one apex. *Kidneys:* chronic interstitial nephritis. Right lobe of thyroid gland contains cysts with warty growths. *Uterus:* sub-serous fibro-myoma, and several intra-uterine polypoid growths.	(ii) Extreme wasting of body.	(i) Sept. 25, '01 (ii) Nov. 26, '01	
98 G.H.B.	C.R. 641 R.A. 274 P.M. 66/02	M	49	Carcinoma of duodenum, involving head of pancreas. Columnar-celled growth.	Liver, portal lymph-glands.	*Lungs:* cicatrices at each apex. Atheroma and some incompetence of aortic valves. Some ascites. Fœces are clay-coloured. Bile can be easily expressed from gall-bladder into duodenum. No jaundice.	(i) Foramen ovale patent. (ii) Body is wasted.	(i) Aug. 28, '02 (ii) Sept. 13, '02	
99 J.B.	C.R. 149 R.B. 101 P.M. 172/00	M	60	Carcinoma of duodenum. Columnar-celled growth.	Lymph-glands, liver.	*Lungs:* emphysema. *Stomach:* Scar of ulcer causing hour-glass contraction. *Kidneys:* fibrotic. *Gall-bladder:* distended. *Duct of pancreas:* dilated.	(ii) Body wasted; deeply jaundiced.	(i) May 18, '00 (ii) July 31, '00	

100 T.S.	C.R. 250 R.B. 253 P.M. 276/00	M	40	Carcinoma of transverse colon (near splenic flexure). Annular growth.	.. ..	Large ulcer of stomach (apparently non-malignant); perforation of anterior wall; purulent peritonitis with free gas in peritoneal cavity. *Lungs:* emphysema; right lung adherent.	.. .. ..	(i) Nov. 28, '00 (ii) Dec. 12, '00	
101 R.P.	C.R. 528 R.B. 327 P.M. 56/02	M	65	Carcinoma of colon (sigmoid flexure); annular growth; ulcerating. Columnar-celled carcinoma.	Liver, right lobe.	*Heart:* enlarged; some chronic thickening of aortic and mitral valves. *Spleen:* congested. *Kidneys:* congested. *Intestines:* very greatly distended. General peritonitis from infection from growth.	.. .. ..	(i) Feb. 2, '02 (ii) Mar. 13, '02	
102 G.G.	C.R. 415 R.B. 253 P.M. 202/01	M	69	Carcinoma of colon (annular growth, hepatic flexure). Columnar-celled growth.	Liver.	Perforation of colon above growth. Peritonitis. *Lungs:* emphysematous. *Heart:* dilated, has undergone fatty degeneration; aortic valves thickened.	.. .. ..	(i) Oct. 2, '01 (ii) Oct. 4, '01	
103 S.G.	C.R. 376 R.B. 228 P.M. 159/01	F	40	Carcinoma of colon, annular growth at splenic flexure. Columnar-celled growth.	Liver.	.. ..	(ii) Both ovaries recently removed.	(i) July 24, '01 (ii) July 29, '01	(ii) Recently artificial anus in left inguinal region.
104 M.P.	C.R. 241 R.B. 147 P.M. 267/00	F	53	Carcinoma of sigmoid, flexure of colon, annular growth. Columnar-celled growth.	.. ..	*Lungs:* congested. *Liver:* fatty. Intestines distended. Perforation of cæcum, gas and fœcal fluid in peritoneum.	.. .. ..	(i) Nov. 26, '00 (ii) Nov. 29, '00	
105 F.P.	C.R. 493 R.B. 305 P.M. 13/02	F	55	Carcinoma of colon (sigmoid flexure), blocking its lumen entirely.	.. ..	*Lungs:* congested. *Heart:* muscle soft. *Liver:* enlarged and fatty. *Kidneys:* fatty.	.. .. ..	(i) Jan. 18, '02 (ii) Jan. 20, '02	
106 E.C.	C.R. 98 R.B. 68 P.M. 106/00	F	58	Carcinoma of sigmoid flexure of colon. Columnar-celled growth.	.. ..	*Liver:* congested.	.. .. ..	(i) April 20, '00 (ii) May 18, '00	

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107 E.K.	C.R. 324 R.B. 190 P.M. 100/01	F	60	Carcinoma of large intestine; annular growth 12 inches beyond cæcum. Columnar-celled growth.	Liver.	*Kidneys:* shew fatty degeneration. Recent perforation of cæcum.	.. .. ..	(i) April 26, '01 (ii) April 29, '01	
108 M.A.T.	C.R. 614 R.B. 381 P.M. 141/02	F	60	Carcinoma of colon (sigmoid flexure), involving and ulcerating a coil of large intestine. Columnar-celled growth.	.. ..	*Lungs:* congested.	.. .. ..	(i) July 7, '02 (ii) July 21, '02	
109 M.A.S.	C.R. 390 R.A. 156 P.M. 54/01	F	72	Carcinoma of colon. Columnar-celled growth.	.. ..	Old fracture of right patella, wide separation of fragments with thin fibrous union; erosion of cartilage at lower end of femur and lipping of articular ends of the bone. There is a general thickening of the mucous membrane of the sigmoid flexure and rectum, but no indication of any malignant new growth in these parts.	(ii) Body much wasted.	(i) July 8, '01 (ii) Aug. 20, '01	
110 M.C.	C.R. 262 R.B. 160 P.M. 12/01	F	75	Carcinoma of sigmoid flexure of colon and rectum (annular growth). Columnar-celled growth.	Lumbar and portal lymph-glands.	*Lungs:* emphysema and chronic bronchitis.	(ii) Body wasted. Recent artificial anus (left) communicating with ileum.	(i) Dec. 28, '00 (ii) Jan. 7, '01	
111 J.C.	C.R. 607 R.B. 375 P.M. 135/02	M	61	Carcinoma of rectum (lower part); annular growth. Spheroidal-celled growth.	Liver, lymph-glands.	*Lungs:* emphysema and œdema. *Kidneys:* firm. Atheroma of aorta.	(ii) Body wasted.	(i) April 24, '02 (ii) July 13, '02	

112 D. de F.	C.R. 429 R.B. 263 P.M. 216/01	M	73	Carcinoma of rectum (immediately above anus). Spheroidal-celled growth.	Lumbar lymph-glands, pancreas, liver, lungs, and heart.	.. ..	(ii) Body well nourished. Recent left inguinal colotomy.	(i) Oct. 5, '01 (ii) Oct. 29, '01	
113 H.P.	C.R. 306 R.A. 126 P.M. 24/01	F	50	Carcinoma of rectum. Spheroidal-celled growth.	Numerous nodules on visceral peritoneum, *lumbar lymph-glands.	*Lungs :* emphysema. *Heart :* atheroma of aortic and cardiac valves. *Kidneys :* chronic interstitial nephritis.	(ii) Body extremely wasted. Artificial anus in left lumbar region.	(i) Jan. 7, '01 (ii) April 6, '01	(i) 7 months. (ii) Lumbar colotomy Nov. 12, 1901.
114 C.B.	C.R. 319 R.A. 132 P.M. 30/01	M	35	Carcinoma of rectum. Columnar-celled growth.	Aortic lymph-glands, liver, and *lungs.	*Heart :* in condition of atrophy with dilatation; mitral and tricuspid valves dilated; varicocele on left side.	(i) Foramen ovale patent. There is a Meckel's diverticulum, situated about 3 ft. above the ileocæcal valve, and 1 in. in length. (ii) Body much wasted. Large intestine much distended, about 18 in. in circumference.	(i) Jan. 25, '01 (ii) April 21, '01	(i) 7 months.
115 A.G.W.	C.R. 624 R.A. 245 P.M. 59/02	M	45	Carcinoma of rectum. Columnar-celled growth.	Lung.	*Lungs :* emphysema; bronchopneumonia in right lower lobe. *Kidneys :* bilateral pyonephrosis. *Bladder :* contains pus; small collections of pus in walls.	(ii) Artificial anus in left inguinal region.	(i) Jan. 29, '02 (ii) Aug. 10, '02	
116 W.S.	C.R. 289 R.A. 117 P.M. 14/01	M	50	Carcinoma of rectum, growth extending to margin of anus. Columnar-celled growth.	Inguinal, aortic, and mesenteric lymph-glands, liver, parietal peritoneum.	*Lungs :* there are a few caseous nodules on each side. *Heart :* old endocarditis, with stenosis of mitral and aortic valves. *Kidneys :* bilateral hydronephrosis, most marked on left side.	(i) Foramen ovale patent. (ii) Extreme wasting of body. Artificial anus in left lumbar region.	(i) April 9, '00 (ii) Feb. 26, '01	(i) 18 months. (ii) Lumbar colotomy April 13, 1901.
117 J.W.	C.R. 486 R.A. 190 P.M. 2/02	M	53	Carcinoma of rectum, extending outwards to fill the pelvis. Columnar-celled growth.	.. ..	*Lungs :* emphysema; bronchopneumonia. *Heart :* musculature brown and firm. *Liver :* in condition of chronic congestion. *Kidneys :* bilateral pyonephrosis and pyonephritis.	(i) Foramen ovale patent. Meckel's diverticulum.	(i) Nov. 5, '01 (ii) Jan. 9, '02	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
118 J.S.	C.R. 49 R.B. 34 P.M. 68/00	M	65	Carcinoma of rectum, annular growth a little above anus. Columnar-celled growth.	Lumbar lymph-glands.	Peritonitis from perforation of rectum above growth. *Lungs :* congested deeply. *Kidney :* left retention cyst of rather large size. Some atheroma of aorta.	.. .. ..	(i) Mar. 15, '00 (ii) Mar. 16, '00	
119 W.H.	C.R. 150 R.B. 102 P.M. 173/00	M	66	Carcinoma of rectum, involving bladder. Columnar-celled growth.	Lymph-glands, liver, pancreas.	*Lungs :* emphysema. *Heart :* small. *Kidney :* left side hydronephrosis and dilated ureter.	.. .. ..	(i) May 15, '00 (ii) Aug. 2, '00	(ii) Left inguinal colotomy.
120 G.T.	C.R. 424 R.A. 169 P.M. 67/01	M	69	Carcinoma of rectum, involving lowest 4 inches and invading the bladder. Columnar-celled growth.	Aortic and mesenteric lymph-glands, *liver.	*Lungs :* emphysema, cicatrices at each apex, calcareous nodules at left apex. *Kidneys :* pyonephritis on right side, caseous nodules in left gland.	(ii) Body very much emaciated. Artificial anus in left inguinal region.	(i) July 8, '01 (ii) Oct. 20, '01	
121 J.T.	C.R. 361 R.A. 146 P.M. 44/01	M	70	Carcinoma of rectum. Columnar-celled growth.	.. ..	*Lungs :* bronchiectasis in right lung ; caseous nodules in apex of left lung. *Kidneys :* pyonephrosis on right side. Small retention cyst in head of pancreas.	(ii) Marked wasting of body. Artificial anus in left inguinal region.	(i) April 6, '01 (ii) July 3, '01	(ii) Left inguinal colotomy Mar. 4, 1901.
122 H.P.	C.R. 523 R.A. 205 P.M. 19/02	M	82	Carcinoma of rectum. Columnar-celled growth.	.. ..	*Lungs :* acute bronchitis ; cicatrisation at one apex. Some incompetence of aortic valve. Pericardium, slight effusion (2 ozs.). Marked atheroma of aorta.	(i) Foramen ovale patent.	(i) July 17, '99 (ii) Mar. 3, '02	

123 E.J.	C.R. 496 R.A. 194 P.M. 6/02	F	41	Carcinoma of rectum, involving its whole circumference. Columnar-celled growth.	Right femoral and left inguinal lymph-glands; liver; pancreas; *spleen; suprarenal capsules; *ovary (right and left); thyroid gland.	Adenoma of thyroid gland. Purulent peritonitis.	(ii) Much wasting of body.	(i) Oct. 28, '01 (ii) Jan. 27, '02	
124 M.A.	C.R. 635 R.A. 249 P.M. 65/02	F	41	Carcinoma of rectum. Columnar-celled growth.	.. ..	*Lungs:* emphysematous, cicatrisation at one apex. *Liver:* in condition of chronic congestion, and seat of fatty degeneration (weight 51 ozs.). *Kidneys:* seat of fatty degeneration; each weighs $4\frac{3}{4}$ ozs. *Ovaries:* cystoma of right one weighing 50 ozs. Lumbar glands appear enlarged, but not infected by new growth.	(ii) Much wasting of body.	(i) July 4, '02 (ii) Sept. 4, '02	
125 S.J.E.	C.R. 365 R.A. 148 P.M. 46/01	F	45	Carcinoma extending through whole length of rectum, invading ileum by contiguity of tissue about 3 feet above the ileo-cæcal valve, with infiltration of posterior wall of vagina. Columnar-celled growth.	.. ..	*Lungs:* emphysema. *Liver:* fatty degeneration (weight 52 ozs.). *Kidneys:* bilateral hydronephrosis.	(ii) Fistulæ between rectum and vagina, and between rectum and ileum.	(i) June 10, '01 (ii) July 5, '01	(i) 8 months.
126 S.E.	C.R. 725 R.A. 280 P.M. 94/02	F	46	Carcinoma of rectum. Columnar-celled growth.	Liver.	*Lungs:* left lower lobe congested, and pleura over it adherent. *Heart:* in condition of brown atrophy (weight $7\frac{1}{2}$ ozs.). *Stomach:* dilated.	(i) Foramen ovale patent. (ii) Much wasting of body.	(i) April 18, '02 (ii) Dec. 19, '02	
127 G.T.	C.R. 285 R.B. 172 P.M. 45/01	F	47	Carcinoma of rectum.	.. ..	Peritonitis. Cysts in right ovary.	(ii) Recent excision of rectum.	(i) Feb. 5, '01 (ii) Feb. 14, '01	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
128 L.A.H.	C.R. 461 R.A. 181 P.M. 77/01	F	51	Carcinoma of rectum, invading anus and vagina. Columnar-celled growth.	.. ..	*Lungs:* emphysema. Incompetence of aortic valve. Gangrene of foot, with thrombosis extending from the bifurcation of the aorta along the left iliac and femoral arteries down to the popliteal space. *Liver:* shews fatty degeneration and congestion. *Kidneys:* chronic interstitial nephritis. *Uterus:* atrophied; small interstitial fibro-myoma and several sub-mucous polypi.	(i) Spleniculus. (ii) Body extremely wasted. Recto-vaginal fistula.	(i) Sept. 20, '01 (ii) Dec. 9, '01	
129 F.W.	C.R. 611 R.A. 240 P.M. 54/02	F	51	Carcinoma of rectum, invading lower end of vagina. Columnar-celled growth.	Left inguinal lymph-glands.	*Lungs:* cicatrix at left apex. *Liver:* in state of advanced fatty degeneration (weight 62½ ozs.). Gall-bladder contains numerous calculi. *Uterus:* polypus in body cavity pointing upwards, with stalk ¾ inch long attached below.	(i) Right kidney placed high up behind right lobe of liver. Ureter 17 inches long.	(i) June 23, '02 (ii) July 17, '02	
130 E.A.C.	C.R. 128 R.A. 41 P.M. 27/00	F	52	Carcinoma of rectum. Carcinoma, extensive colloid degeneration.	Single nodule in cæcum.	*Lungs:* cicatrices at both apices. *Heart:* in condition of brown atrophic degeneration. *Liver:* fatty degeneration. *Stomach:* thickening of mucous membrane of posterior wall about lesser curvature, with extensive cicatrisation. Thickening of mucous membrane near ileo-cæcal valve. Chronic peritonitis.	(ii) Considerable wasting of body. Artificial anus in left inguinal region, and another in left lumbar.	(i) Mar. 19, '00 (ii) July 2, '00	(i) 3 months. (ii) Left inguinal colotomy. Left lumbar colotomy.

131 L.E.	C.R. 691 R.A. 265 P.M. 83/02	F	52	Carcinoma of rectum. Columnar-celled growth.	Left iliac lymph-gland.	Patches of thickened epithelium on tongue at anterior part. *Lungs:* œdematous. *Stomach:* dilated. *Liver:* in state of fatty degeneration, with fibrosis (weight 67¾ ozs.). *Uterus:* small mucous polypi in cervical canal. Subserous fibromyoma 5 cm. diameter, partly calcified. Peritoneum contains 12 ozs. of pus and much inflammatory exudation.	(i) Foramen ovale patent. (ii) Wasting of body.	(i) Oct. 7, '02 (ii) Nov. 16, '02	
132 M.A.H.	C.R. 556 R.B. 341 P.M. 127/02	F	55	Carcinoma of rectum (removed). Columnar-celled growth.	Liver, kidneys, thyroid gland.	Purulent peritonitis from perforation of an ulcer in the sigmoid flexure.	.. .. ..	(i) May 4, '02 (ii) July 4, '02	(ii) Removal of growth from rectum.
133 H.N.	C.R. 146 R.B. 98 P.M. 170/00	F	57	Carcinoma of rectum, annular growth at upper end. Columnar-celled growth.	Liver.	*Lungs:* congested. *Heart:* small excess of fat. *Spleen:* small. *Stomach and intestine:* greatly distended.	(ii) Body emaciated.	(i) July 27, '00 (ii) July 28, '00	(ii) Recent left inguinal colotomy.
134 S.C.	C.R. 454 R.A. 179 P.M. 75/01	F	58	Carcinoma of rectum, involving the lowest 3 in. Columnar-celled growth.	Lumbar lymph-glands, liver, lung.	*Lungs:* a few caseous nodules on both sides. *Kidneys:* large, granular type. Calcareous nodules at attachment of mesentery.	(ii) Body wasted. Artificial anus in left inguinal region.	(i) July 5, '01 (ii) Nov. 28, '01	
135 C.S.	C.R. 297 R.A. 122 P.M. 20/01	F	59	Carcinoma of rectum. Columnar-celled growth.	Aortic lymph-glands, liver, lungs.	*Lungs:* cicatrisation at right apex. *Heart:* small vegetation on cusp of aortic valve. *Kidneys:* slight chronic interstitial nephritis.	(i) Small middle lobe of thyroid gland persistent. (ii) Much wasting of body.	(i) Oct. 29, '00 (ii) Mar. 13, '01	
136 A.M.	C.R. 167 R.A. 59 P.M. 44/00	F	60	Carcinoma of rectum. Columnar-celled growth.	Liver, pancreas, lungs, kidneys, heart, *left inguinal lymph-glands.	*Lungs:* cicatrisation at right apex.	(ii) Much wasting of body. Artificial anus in left inguinal region.	(i) Nov. 11, '99 (ii) Aug. 26, '00	(ii) Left inguinal colotomy June 5, 1900.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
137 R.B.	C.R. 535 R.A. 209 P.M. 23/02	F	60	Carcinoma of rectum, fixing it to coccyx and tubera ischii. Columnar-celled growth.	*Liver, lungs.	*Lungs:* infarcts in middle and lower lobes of right lung. *Heart:* aortic valves slightly incompetent by reason of thick loosely-attached vegetations on ventricular aspect of each cusp. *Thyroid gland:* caseous nodule in right lobe. *Kidneys:* granular. Deep purple discolouration of nose below nasal bones; also of toes of left foot, fading on dorsum. Right foot and tips of fingers somewhat purple-coloured.	(ii) Body wasted.	(i) Nov. 9, '01 (ii) Mar. 23, '02	
138 E.G.	C.R. 101 R.A. 34 P.M. 20/00	F	61	Carcinoma of rectum.*	.. ..	*Lungs:* bronchitis, cicatrisation at right apex. *Liver:* in condition of fatty degeneration.	(ii) Some wasting of body. Artificial anus in left lumbar region.	(i) Nov. 4, '99 (ii) May 23, '00	
139 E.S.	C.R. 154 R.A. 51 P.M. 37/00	F	61	Carcinoma of rectum. Columnar-celled growth.	.. ..	*Lungs:* caseous nodule at left apex. Small vegetations on aortic cusps. *Liver:* fatty degeneration, with fibrosis.	(ii) Some wasting of body. Artificial anus in left lumbar region.	(i) Jan. 22, '00 (ii) Aug. 7, '00	
140 A.W.	C.R. 83 R.A. 27 P.M. 15/00	F	66	Carcinoma of rectum. Columnar-celled growth.	.. ..	*Lungs:* bronchitis. Large abscess close to artificial anus.	(ii) Body fairly well nourished. Artificial anus in left inguinal region.	(i) Mar. 29, '00 (ii) April 28, '00	
141 S.E.S.	C.R. 127 R.B. 86 P.M. 138/00	F	66	Carcinoma of rectum, involving uterus, broad ligament, and left ovary. Columnar-celled growth.	Liver, spleen.	*Lungs:* œdematous and congested. *Heart:* small.	(ii) Uterus almost entirely destroyed.	(i) May 17, '00 (ii) June 28, '00	

142 M.M.	C.R. 242 14 R.A. 95 P.M. 78/00	F	67	Carcinoma of rectum, involving anus and vulva. Columnar-celled growth.	Left inguinal lymph-glands.	*Lungs:* cicatrisation at left apex; pneumonia right middle and upper lobe; right lowest lobe collapsed. *Liver:* fatty degeneration with chronic congestion. *Kidneys:* chronic interstitial nephritis. Small sub-mucous polypus in cervical canal of uterus.	(i) Foramen ovale patent. Pulmonary valve has four cusps of equal size. (ii) No obvious wasting of body.	(i) Sept. 18, '00 (ii) Nov. 30, '00	
143 M.H.	C.R. 378 R.A. 153 P.M. 51/01	F	79	Carcinoma of rectum, involving vagina. Columnar-celled growth.	Liver, lungs.	*Heart:* small vegetations on posterior aortic cusp; mitral valve deeply puckered and thickened, with calcification of one flap. *Liver:* bladder contains two calculi. *Kidneys:* both atrophied.	(ii) Some wasting of body. Recto-vaginal fistula.	(i) April 15, '01 (ii) July 28, '01	(i) About 9 months.
144 J.C.	C.R. 651 R.B. 407 P.M. 187/02	M	56	Carcinoma of omentum. Spheroidal-celled growth.	.. ..	*Liver:* enlarged. Gall-bladder contained several calculi and some thick whitish fluid. Calculus impacted in the cystic duct. *Peritoneum:* contains blood-stained fluid.	.. .. ..	(i) Sept. 18, '02 (ii) Sept. 25, '02	
145 W.P.	C.R. 195 R.B. 119 P.M. 247/00	M	60	Carcinoma of omentum and peritoneum. Columnar-celled growth.	Peritoneum.	*Lungs:* congested. Fifteen ozs. turbid fluid in right pleural cavity. Chylous ascites. *Kidney:* right hydronephrosis.	(ii) Body wasted.	(i) Sept. 17, '00 (ii) Oct. 28, '00	(ii) Exploratory operation Sept. 26, 1900.
146 C.H.	C.R. 263 R.B. 161 P.M. 9/01	M	40	Carcinoma of liver. Spheroidal-celled growth.	Lungs, bronchial lymph-glands.	*Liver:* enlarged and cirrhotic.	(ii) No ascites.	(i) Dec. 10, '00 (ii) Jan. 5, '01	
147 G.P.	C.R. 684 R.B. 431 P.M. 218/02	M	48	Carcinoma of liver (associated with atrophic cirrhosis) right lobe. Spheroidal-celled growth.	.. ..	*Lungs:* œdematous. *Heart:* small. *Spleen:* enlarged, capsule thickened. *Kidneys:* pale.	.. ..	(i) Oct. 21, '02 (ii) Nov. 6, '02	
148 H.M.	C.R. 399 R.B. 244 P.M. 182/01	M	58	Carcinoma of liver. Spheroidal-celled growth.	Lymph-glands, lungs.	*Liver:* enlarged (83 ozs.). *Gall-bladder:* distended.	.. .. ..	(i) Sept. 5, '01 (ii) Sept. 10, '01	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
149 L.P.	C.R. 479 R.B. 293 P.M. 257 01	F	61	Carcinoma of liver. Spheroidal-celled growth.	.. ..	*Liver:* very much enlarged (123 ozs.). *Lungs:* emphysema. *Heart:* muscle pale and seat of fatty degeneration.	.. .. ..	(i) Nov. 21, '01 (ii) Dec. 30, '01	
150 W.G.	C.R. 591 R.A. 231 P.M. 46/02	M	62	Carcinoma of liver. Columnar-celled growth.	Lumbar lymph-glands.	*Lungs:* cicatrix at left apex. *Thyroid gland:* small adenoma. *Liver:* in condition of chronic congestion. *Kidneys:* granular. Two cavities of small size, containing blackish fluid, in connection with peritoneum on left side.	(ii) Body emaciated.	(i) May 22, '02 (ii) June 19, '02	
151 A.V.	C.R. 304 R.B. 179 P.M. 78/01	M	54	Carcinoma of gall-bladder, invading right lobe of liver. Spheroidal-celled growth.	.. ..	*Gall-bladder:* contains several small facetted calculi. *Kidneys:* enlarged and fatty. *Spleen:* large and soft.	.. .. ..	(i) Mar. 14, '01 (ii) April 2, '01	
152 T.C.W.	C.R. 172 R.B. 110 P.M. 203/00	M	37	Carcinoma of gall-bladder, invading head of pancreas. Columnar-celled growth.	.. ..	Numerous calculi in gall-bladder. *Lungs:* œdematous. *Heart:* right side somewhat dilated.	(i) Horse-shoe kidney. (ii) Deeply jaundiced.	(i) Aug. 25, '00 (ii) Sept. 3, '00	
153 D.S.	C.R. 386 R.B. 236 P.M. 171/01	M	63	Carcinoma of bile-ducts, extending to liver. Columnar-celled growth.	.. ..	*Lungs:* emphysema. *Stomach:* dilated.	(ii) Very deeply jaundiced. Recent incision into abdomen.	(i) July 17, '01 (ii) Aug. 13, '01	
154 M.T.	C.R. 78 R.B. 55 P.M. 90/00	F	58	Carcinoma of cystic duct of gall-bladder. Columnar-celled growth.	(?) Peritoneum.	*Heart:* small, some thickening of aortic cusps. *Gall-bladder:* distended, contains about 6 facetted calculi. *Liver:* displaced downwards. Slight amount of blood-stained fluid in right pleura.	.. .. ..	(i) Mar. 27, '00 (ii) April 15, '00	

155 J.B.	C.R. 161 R.B. 105 P.M. 189/00	M	54	Carcinoma of pancreas. Spheroidal-celled growth.	Liver.	*Lungs :* œdematous. Bile-stained fluid in left pleura and in peritoneum (40 ozs.).	(ii) Deeply jaundiced.	(i) June 26, '00 (ii) Aug. 16, '00
156 F.W.	C.R. 19 R.B. 13 P.M. 30/00	M	62	Carcinoma of pancreas (entire organ). Spheroidal-celled growth.	Liver.	*Lungs :* congestion, emphysema. *Heart :* Atheroma of aorta and its valves ; mitral valves thickened. *Intestines :* congested. *Kidneys :* fibrosis.	(ii) Body wasted. Deeply jaundiced.	(i) Jan. 2, '00 (ii) Feb. 3, '00
157 S.W.	C.R. 478 R.B. 292 P.M. 253/01	M	65	Carcinoma of pancreas. Spheroidal-celled growth.	Liver, pleura.	*Heart :* left ventricle hypertrophied ; organ enlarged.	.. .. ..	(i) Nov. 26, '01 (ii) Dec. 25, '01
158 L.P.	C.R. 166 R.A. 58 P.M. 43/00	F	27	Carcinoma of pancreas, invading stomach. Spheroidal-celled growth.	Liver, spleen, peritoneum, ovaries.	.. ..	(ii) Body very much wasted.	(i) June 25, '00 (ii) Aug. 26, '00
159 M.G.	C.R. 232 R.B. 142 P.M. 259/00	F	27	Carcinoma of pancreas (head). Spheroidal-celled growth.	Liver, lungs.	*Lungs :* broncho-pneumonia. *Stomach :* ulcer of posterior wall. *Liver :* enlarged. *Gall-bladder :* distended.	(ii) Body deeply jaundiced.	(i) Oct. 11, '00 (ii) Nov. 15, '00
160 R.W.	C.R. 331 R.B. 196 P.M. 112/01	F	40	Carcinoma of pancreas. Columnar-celled growth.	.. ..	*Lungs :* emphysema and œdema. *Stomach :* distended.	(ii) Very deeply jaundiced. Recent incision in abdomen. Gall-bladder sutured to abdominal wall.	(i) April 25, '01 (ii) May 8, '01
161 E.E.	C.R. 396 R.A. 157 P.M. 55/01	F	49	Carcinoma of right kidney, invading adrenal gland.	Bronchial lymph-glands, lungs.	*Lungs :* emphysema.	.. .. ..	(i) July 27, '01 (ii) Aug. 30, '01
162 L.E.K.	C.R. 302 R.B. 177 P.M. 57/01	F	57	Carcinoma of left kidney. Spheroidal-celled growth.	Right kidney, liver, lungs, pleura.	*Heart :* fatty degeneration of muscle wall. *Colon :* early inflammation of mucous membrane.	.. .. ..	(i) Mar. 7, '01 (ii) Mar. 31, '01

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
163 S.T.	C.R. 228 R.A. 91 P.M. 73/00	F	59	Carcinoma of left kidney.	.. ..	*Lungs:* bronchitis. *Heart:* atheroma of coronary arteries. *Liver:* slight degree of fatty degeneration (weight 42½ ozs.). *Bladder:* small papillomatous growth.	(i) No definite middle lobe of right lung. (ii) Considerable wasting of body.	(i) Aug. 8, '00 (ii) Nov. 12, '00	(i) 2½ years.
164 T.L.	C.R. 279 R.A. 110 P.M. 7/01	M	28	Carcinoma of bladder, with infiltration of skin over pubes. Squamous-celled growth.	.. ..	*Lungs:* bronchitis. *Heart:* dilatation of tricuspid valve. *Kidneys:* pyo-nephritis on both sides.	(i) A fourth cusp of pulmonary valve. (ii) Some wasting of body.	(i) Nov. 20, '00 (ii) Feb. 5, '01	
165 J.R.	C.R. 118 R.A. 38 P.M. 24/00	M	54	Carcinoma of bladder. Squamous-celled growth.	Inguinal and *lumbar lymph-glands.	*Lungs:* broncho-pneumonia of right lower lobe. *Heart:* recent pericarditis. *Kidneys:* nodules (? tubercular) in left gland. Small sub-mucous fibroma of œsophagus.	(i) Foramen ovale patent. (ii) Body somewhat wasted. Supra-pubic cystotomy wound still open.	(i) April 13, '99 (ii) June 16, '00	
166 H.S.	C.R. 411 R.A. 165 P.M. 63/01	M	82	Carcinoma of bladder. Squamous-celled growth.	.. ..	*Lungs:* emphysema. *Heart:* thickening of aortic cusps. *Liver:* in condition of congestion. *Kidneys:* chronic interstitial nephritis. *Stomach:* small polypoid myoma. Middle lobe of prostate enlarged.	(ii) Body wasted.	(i) Aug. 21, '01 (ii) Sept. 30, '01	
167 S.A.	C.R. 82 R.A. 26 P.M. 14/00	F	50	Carcinoma of bladder, invading cervix of uterus. Squamous-celled growth.	Left pelvic lymph-glands.	*Liver:* fatty degeneration, with cirrhosis. Chronic peritonitis.	.. .. ..	(i) Feb. 21, '00 (ii) April 27, '00	

168 J.D.	C.R. 240 R.A. 94 P.M. 35/01	F	63	Carcinoma of bladder. Squamous-celled growth.	.. ..	*Lungs:* bronchitis. *Heart:* mitral valve slightly dilated. *Kidneys:* bilateral hydronephrosis. Adenoma of left adrenal gland. Follicular colitis.	(ii) Body with large amount of subcutaneous fat.	(i) Nov. 5, '00 (ii) May 31, '01	(i) 21 months. (ii) Removal of portion of growth Nov. 27, 1900.
169 S.E.B.	C.R. 197 R.A. 76 P.M. 60/00	F	64	Carcinoma of bladder. Squamous-celled growth.	Pelvic and *lumbar lymph-glands.	*Lungs:* emphysema. *Heart:* atheroma and stenosis of mitral valve. *Kidneys:* pyonephritis on both sides. Multilocular cystic tumour of right lateral lobe of thyroid gland.	(ii) Body with large amount of subcutaneous fat.	(i) Sept. 19, '00 (ii) Sept. 27, '00	
170 M.L.H.	C.R. 81 R.A. 24 P.M. 12/00	F	66	Carcinoma of bladder. Squamous-celled growth.	Pelvic lymph-gland on left side.	*Liver:* bladder contains three calculi; a fourth small calculus is impacted in the cystic duct; the bladder contains no bile.	(ii) Body well nourished.	(i) Feb. 16, '00 (ii) April 21, '00	
171 M.F.	C.R. 408 R.A. 163 P.M. 61/01	F	41	Carcinoma of bladder, extending through wall into roof of vagina. Columnar-celled growth.	Inguinal lymph-glands on each side.	*Lungs:* shew areas of lobular pneumonia. *Kidneys:* nodules (? tubercular) in right gland. Hydrosalpinx on right side.	(ii) Body slightly wasted.	(i) Aug. 30, '01 (ii) Sept. 26, '01	
172 M.B.	C.R. 519 R.A. 203 P.M. 17/02	F	76	Carcinoma of urethra, involving labia minora and bladder; vesico-vaginal fistula. Squamous-celled growth.	.. ..	*Lungs:* bronchitis. *Heart:* in condition of brown atrophy. *Liver:* marked atrophic cirrhosis. *Bladder:* inflamed; vesico-vaginal fistula. *Uterus:* one or two small interstitial fibro-myomata.	(i) Foramen ovale not closed. (ii) Body wasted.	(i) Mar. 4, '01 (ii) Feb. 26, '02	
173 E.A.C.	C.R. 450 R.A. 177 P.M. 73/01	F	57	Carcinoma of urethra. Spheroidal-celled growth.	Liver, breast, axillary lymph-glands.	*Lungs:* emphysema; slight cicatrisation at left apex. *Liver:* several calculi in bladder. *Kidneys:* slight degree of chronic interstitial nephritis.	(i) Minute fistula through tragus of left ear. (ii) Body fairly well nourished.	(i) Jan. 28, '01 (ii) Nov. 23, '01	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
174 M.L.	C.R. 530 R.A. 207 P.M. 21/02	F	45	Carcinoma of left ovary, involving wall of cervix and body of uterus. Spheroidal-celled growth.	Liver, right ovary.	*Lungs:* œdematous; cicatrisation at left apex. *Thyroid gland:* colloid cyst in right lobe. Calcareous masses in mesentery.	(i) Right lower lobe of lung sub-divided by a deep sulcus into two lobes. Foramen ovale patent. (ii) Considerable wasting. Recent wound of abdominal section not entirely healed.	(i) Jan. 9, '02 (ii) Mar. 17, '02	
175 R.H.	C.R. 644 R.A. 251 P.M. 68/02	F	52	Carcinoma of (?) ovary. Spheroidal-celled growth.	Peritoneum, omentum.	*Lungs:* œdema. Left lower lobe coilapsed. Pleural effusions. *Heart:* in condition of brown atrophy (weight 5½ ozs.). Peritoneal effusion. All the organs are very small. Weight of liver 22½ ozs., right kidney 3½ ozs., left kidney 3½ ozs., spleen 2½ ozs., pancreas 1 oz.	(i) Foramen ovale patent. (ii) Body wasted. Mesial scar below umbilicus.	(i) June 24, '02 (ii) Sept. 17, '02	
176 E.T.	C.R. 160 R.A. 55 P.M. 16,02	F	68	Carcinoma of vulva (removed). Squamous-celled growth.	.. ..	*Lungs:* bronchitis; cicatrisation at one apex. Atheroma of cusps of aortic valve. *Liver:* in condition of chronic congestion. *Uterus:* several small fibro-myomata, the largest about 4 cm. in diameter, partly calcified.	(ii) Body very well nourished.	(i) Aug. 8, '00 (ii) Feb. 22, '02	(ii) Removed Aug. 13, 1900.
177 E.J.P.	C.R. 277 R.A. 108 P.M. 5/01	F	72	Carcinoma of vulva. Squamous-celled growth.	*Right inguinal and iliac lymph-glands.	*Heart:* atrophy, with brown degeneration; slight dilatation of tricuspid valve. *Kidneys:* chronic interstitial nephritis. Simple ulcer of mucous membrane of stomach.	(ii) Considerable wasting of body.	(i) Jan. 8, '01 (ii) Jan. 31, '01	(i) 6 years. (ii) 6 years ago at Brighton Hospital.

178 L.A.D.	C.R. 592 R.A. 232 P.M. 45/02	F	78	Carcinoma of vulva, involving anus. Squamous-celled growth.	Inguinal lymph-glands.	*Tongue:* loss of papillæ, and thickening of epithelium on dorsum. *Lungs:* some bronchitis and broncho-pneumonia; cicatrix and calcareous nodules at one apex. *Liver:* in condition of chronic congestion (weight 30¾ ozs.). *Kidneys:* pyelitis of right organ, with small collections of pus beneath capsule. Both organs slightly granular. *Uterus:* small polypus in cervical canal.	(ii) Body much wasted; skin deeply pigmented.	(i) Feb. 28, '02 (ii) June 19, '02
179 S.T.	C.R. 714 R.A. 272 P.M. 91/02	F	85	Carcinoma of vulva. Squamous-celled growth.	Inguinal lymph-glands, peritoneum, pleuræ, lungs.	*Lungs:* infarcts in right. *Kidneys:* slightly granular; chronic pyelitis left side. *Bladder:* inflamed. Lumbar lymph-glands appear enlarged, but not infected.	(ii) Wasting of body.	(i) Sept. 6, '02 (ii) Dec. 6, '02
180 E.K.	C.R. 616 R.A. 243 P.M. 56/02	F	27	Carcinoma of uterus (cervix), involving body and invading vagina, fistulous communication of vagina with bladder and rectum. Squamous-celled growth.	.. ..	*Heart:* in condition of brown atrophy (weight 4¾ ozs.). *Liver:* in state of chronic congestion (weight 42¼ ozs.). *Kidneys:* right is seat of suppurative pyelitis and pyonephritis. On left side hydronephrosis. Vesico-vaginal and recto-vaginal fistulæ.	(ii) Marked wasting of body.	(i) Nov. 6, '01 (ii) July 27, '02
181 C.M.	C.R. 722 R.A. 279 P.M. 93/02	F	28	Carcinoma of uterus (cervix), involving body of organ and invading broad ligaments and fallopian tubes. Squamous-celled growth.	Left ovary.	*Lungs:* emphysema, on left side bronchitis. Cicatrix at right apex. *Liver:* in condition of chronic congestion. *Kidneys:* left granular; hydronephrosis on right side. Lumbar lymph-glands enlarged and soft, not infected.	(ii) Much wasting of body.	(i) Dec. 23, '01 (ii) Dec. 18, '02

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
182 E.H.	C.R. 685 R.A. 263 P.M. 81/02	F	30	Carcinoma of uterus (cervix), involving wall of body of organ. Squamous-celled growth.	(?) Ovaries, iliac and lumbar lymph-glands.	*Lungs:* caseous nodules in apices. *Liver:* in state of fatty degeneration (weight 42½ ozs.). *Pancreas:* extravasation of blood (very slight) near main duct. *Kidneys:* granular; hydronephrosis on right side. *Ovaries:* cystic—small.	(i) Foramen ovale patent. (ii) Much wasting of body.	(i) Aug. 23, '02 (ii) Nov. 8, '02	
183 C.L.V.	C.R. 516 R.A. 202 P.M. 14/02	F	31	Carcinoma of uterus (cervix) (recurrent after removal), involving vagina and rectum. Squamous-celled growth.	Lumbar lymph-glands, ileum.	*Lungs:* slight emphysema. *Heart:* in condition of brown atrophy. *Kidneys:* on right side there is pyonephritis, on left side hydronephrosis. *Bladder:* inflamed; vesico-vaginal fistula. Recto-vaginal fistula.	(ii) Extreme wasting of body.	(i) Dec. 31, '01 (ii) Feb. 16, '02	
184 H.F.	C.R. 190 R.A. 72 P.M. 56/00	F	32	Carcinoma of uterus (cervix). Squamous-celled growth.	.. ..	*Lungs:* old pleural adhesions. *Liver:* seat of fatty degeneration (weight 39¾ ozs.). Collection of 8 ozs. of thick pus in Douglas' pouch. Iliac lymph-glands enlarged, but not affected by new growth.	(ii) No obvious wasting of body.	(i) July 31, '00 (ii) Sept. 23, '00	(i) 8 months.
185 S.E.J.	C.R. 252 R.A. 98 P.M. 80/00	F	34	Carcinoma of uterus (cervix), invading vagina and infiltrating portion of rectum and ileum adjacent to uterus. Squamous-celled growth.	Lumbar lymph-glands, *liver.	*Lungs:* cicatrices at each apex. *Kidneys:* occlusion of right ureter with hydronephrosis. Vesico-vaginal fistula. Aortic lymph-glands enlarged, but not affected by new growth.	(i) Small accessory adrenal gland in pelvic fat of right kidney. (ii) Extreme wasting of body.	(i) Nov. 5, '00 (ii) Dec. 13, '00	(i) 2 years. (ii) Hysterectomy 12 months previous to admission.

186 E.B.	C.R. 314 R.A. 131 P.M. 29/01	F	34	Carcinoma of uterus (cervix), involving body of organ and invading broad ligament, vagina, and bladder. Squamous-celled growth.	.. ..	*Heart:* some thickening of one of aortic cusps. *Kidneys:* bilateral hydronephrosis; glands atrophied (left weighs $1\frac{3}{4}$ ozs., right $3\frac{1}{2}$ ozs.). Hydrosalpinx on right side.	(i) Foramen ovale patent. (ii) Considerable wasting of body.	(i) Aug. 20, '00 (ii) April 14, '01	(i) 2 months.
187 A.B.	C.R. 542 R.A. 213 P.M. 27/02	F	34	Carcinoma of uterus (cervix). Squamous-celled growth.	Lumbar lymph-glands, liver, lung.	*Lungs:* broncho-pneumonia in upper lobes; collapse of lower lobes. *Heart:* in condition of brown atrophy (weight $6\frac{3}{4}$ ozs.). *Thyroid gland:* adenoma in right lobe. *Liver:* in condition of chronic congestion. *Kidneys:* slightly granular. Acute general peritonitis; 35 ozs. of turbid fluid in cavity.	(ii) Some wasting of body.	(i) Feb. 18, '02 (ii) April 9, '02	
188 E.C.	C.R. 398 R.A. 159 P.M. 57/01	F	35	Carcinoma of uterus (cervix), invading roof of vagina. Squamous-celled growth.	.. ..	*Lungs:* hæmorrhagic infarcts on both sides. *Kidneys:* advanced hydronephrosis on right side. Inflammatory exudation on surface of cerebral hemispheres. Partial calcification of falx cerebri.	(i) Foramen ovale patent. (ii) Slight wasting of body; œdema of legs and lower part of body.	(i) May 27, '01 (ii) Sept. 9, '01	
189 E.H.	C.R. 527 R.A. 206 P.M. 20/02	F	35	Carcinoma of uterus (cervix), involving vagina; vesico-vaginal fistula. Squamous-celled growth.	*Lumbar lymph-glands.	*Lungs:* slight cicatrisation at each apex; a little bronchitis. *Thyroid gland:* middle lobe and two or three small cysts. *Liver:* in condition of chronic congestion. *Bladder:* vesico-vaginal fistula, not inflamed. *Uterus:* sub-mucous fibrous polypus in body cavity.	.. .. ..	(i) Dec. 2, '01 (ii) Mar. 11, '02	

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190 F.H.	C.R. 579 R.A. 229 P.M. 43/02	F	35	Carcinoma of uterus (cervix), involving body of organ and invading vagina. Squamous-celled growth.	Mesentery.	*Lungs:* œdema and emphysema; caseous nodules, and a small cavity in right upper lobe. *Heart:* dilated, mitral and tricuspid valves: organ enlarged (weight 11 ozs.). *Liver:* seat of fatty degeneration and fibrosis (weight 60 ozs.). *Kidneys:* hydronephrosis on right side. *Uterus:* small sub-peritoneal fibromyoma. *Peritoneum:* contains 15 ozs. of purulent fluid (no evident inflammation).	(ii) Body well nourished.	(i) Feb. 25, '02 (ii) June 5, '02	
191 A.F.W.	C.R. 109 R.A. 36 P.M. 22/00	F	37	Carcinoma of uterus (cervix). Squamous-celled growth.	*Inguinal, *iliac, and lumbar lymph-glands, *liver, lungs, diaphragm, ovary, subcutaneous tissue over sternum, and left *supra-clavicular lymph-glands.	*Lungs:* collapse of left lung. *Liver:* shews fatty degeneration (weight 54½ ozs.). *Kidneys:* hydronephrosis on left side. Cystic degeneration of both adrenal glands. Obstruction at upper end of thoracic duct from pressure of supra-clavicular glands, with chylous ascites.	(ii) Body well nourished.	(i) May 23, '00 (ii) June 8, '00	(i) 18 months.
192 M.A.N.	C.R. 163 R.A. 57 P.M. 42/00	F	37	Carcinoma of uterus (cervix), with extension along broad ligaments to both ovaries. Squamous-celled growth.	*Lungs, bronchial lymph-glands on right side.	*Lungs:* emphysema and bronchitis both sides, infarcts in right lowest lobe. *Kidneys:* pyonephrosis on both sides. Cystitis. Cystic degeneration of both adrenal glands.	(ii) Marked degree of wasting of body.	(i) May 1, '00 (ii) Aug. 20, '00	(i) 1 year.

193 C.S.	C.R. 254 R.A. 100 P.M. 82/00	F	38	Carcinoma of uterus (cervix), extending to vagina and wall of bladder. Squamous-celled growth.	.. ..	*Lungs:* cicatrices at apex of each. *Heart:* walls thin, soft, and brown; minute vegetations on edges of aortic cusps. *Liver:* the seat of slight fatty degeneration. *Kidneys:* on right side small miliary abscesses; on left side pyonephrosis. Right iliac lymphatic glands enlarged, but not affected by new growth.	(ii) Body much wasted.	(i) Sept. 14, '00 (ii) Dec. 15, '00	(i) More than 6 months.
194 C.P.	C.R. 351 R.A. 142 P.M. 40/01	F	38	Carcinoma of uterus (cervix), extending down vaginal wall. Squamous-celled growth.	Pelvic and aortic lymph-glands, liver, nodules on visceral peritoneum (of cæcum).	*Lungs:* small calcified nodules in right apex; hæmorrhagic infarcts in right lowest lobe. *Heart:* slight degree of aortic incompetence; dilatation of tricuspid valve. *Liver:* in condition of fatty degeneration (weight 62$\frac{3}{4}$ ozs.). *Kidney:* hydronephrosis on left side.	(i) Foramen ovale patent. (ii) Marked wasting of body. Vesico-vaginal fistula. Ovaries removed April 3, '01.	(i) Mar. 13, '01 (ii) June 16, '01	(i) 10 months. (ii) Oophorectomy April 3, 1901.
195 R.E.W.	C.R. 368 R.A. 149 P.M. 47/01	F	38	Carcinoma of uterus (cervix) (uterus and ovaries represented by a large soft mass containing a sloughing cavity, individual parts cannot be distinguished), extension to rectum, bladder, and vagina. Squamous-celled growth.	Two nodules in liver.	*Lungs:* emphysema, old pleural adhesions. *Liver:* in condition of fatty degeneration (weight 45$\frac{1}{2}$ ozs.).	(ii) Considerable wasting of body.	(i) June 11, '01 (ii) July 17, '01	(i) 7 months. (ii) (Supra-vaginal) at Samaritan Hospital 5 months ago.
196 A.N.	C.R. 653 R.B. 408 P.M. 192/02	F	38	Carcinoma of uterus (cervix), involving lower part of corpus adherent to and perforating sigmoid flexure of colon. Squamous-celled growth.	.. ..	*Lungs:* broncho-pneumonia.	.. .. ..	(i) Sept. 19, '02 (ii) Sept. 26, '02	

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197 S.G.	C.R. 700 R.A. 277 P.M. 86/02	F	38	Carcinoma of uterus (cervix), involving body and invading vagina, bladder, and broad ligaments. Squamous-celled growth.	.. ..	*Lungs :* emphysema. *Liver :* in state of fatty degeneration (weight $39\frac{1}{4}$ ozs.). *Kidneys :* bilateral hydronephrosis. Lumbar and left supra-clavicular glands enlarged, but not infected.	(i) Foramen ovale patent. (ii) Body is wasted.	(i) Oct. 11, '02 (ii) Nov. 22, '02	
198 E.G.	C.R. 286 R.A. 114 P.M. 11/01	F	39	Carcinoma of uterus (cervix), extending to vagina and bladder. Squamous-celled growth.	Left ovary.	*Lungs :* emphysematous. *Liver :* fatty degeneration (weight $52\frac{1}{4}$ ozs.). Several small calculi in bladder. *Kidneys :* bilateral hydronephrosis.	(i) Foramen ovale patent. (ii) Some wasting of body. Vesico-vaginal fistula.	(i) Nov. 9, '00 (ii) Feb. 17, '01	(i) 6 months.
199 F.A.	C.R. 664 R.A. 256 P.M. 75/02	F	39	Carcinoma of uterus (cervix), involving body of organ and invading vagina, bladder and rectum. Vesico-vaginal and recto-vaginal fistulæ. Squamous-celled growth.	.. ..	*Heart :* incompetence of aortic valve ; partial union of two cusps ; atheroma. *Kidney :* left shews marked fibrosis, vesico-vaginal and recto-vaginal fistulæ. Lumbar lymph-glands enlarged, do not appear infected.	(ii) Much wasting of body.	(i) April 19, '02 (ii) Oct. 7, '02	
200 E.M.J.	C.R. 564 R.A. 224 P.M. 38/02	F	40	Carcinoma of uterus (cervix), involving body of organ. Squamous-celled growth.	Both ovaries, inguinal, iliac, and lumbar lymph-glands, liver : pleuræ over lungs.	*Lungs :* emphysema. *Liver :* seat of fatty degeneration. *Kidneys :* bilateral pyonephrosis and pyonephritis. *Bladder :* inflamed.	(ii) Much wasting of body.	(i) Nov. 14, '02 (ii) May 19, '02	
201 G.F.	C.R. 94 R.B. 66 P.M. 105/00	F	41	Carcinoma of uterus (cervix), involving broad ligaments and bladder walls, filling the pelvis and compressing the rectum. Squamous-celled growth.	Lumbar lymph-glands, liver, small intestine.	*Lungs :* small, emphysematous. *Heart :* small. *Liver :* fatty. Extensive ulceration of mucous membrane of colon.	(ii) Body well nourished. Recent incisions in right inguinal region, and in mid line.	(i) May 8, '00 (ii) May 16, '00	

202 E.H.	C.R. 633 R.A. 248 P.M. 64/02	F	41	Carcinoma of uterus (cervix), involving body, and invading upper part of vagina and bladder. Vesico-vaginal fistula. Squamous-celled growth.	.. ..	*Lungs:* calcareous nodule in right upper lobe. *Liver:* in condition of chronic congestion, with fatty degeneration (weight 48 ozs.). Several calculi in gall-bladder. *Kidneys:* hydronephrosis on both sides. Vesico-vaginal fistula.	(ii) Some wasting of body.	(i) July 9, '02 (ii) Sept. 2, '02	
203 B.B.	C.R. 708 R.A. 269 P.M. 88/02	F	41	Carcinoma of *uterus (cervix), involving body of organ, and invading bladder and rectum; (?) vesico-vaginal and (?) recto-vaginal fistula. Squamous-celled growth.	Lumbar lymph-gland.	*Lungs:* emphysematous. Fibrosis of liver, kidneys, and spleen.	.. .. ..	(i) Oct. 10, '02 (ii) Nov. 29, '02	
204 E.E.	C.R. 340 R.A. 140 P.M. 36/01	F	42	Carcinoma of uterus (cervix), invading posterior wall of bladder. Squamous-celled growth.	Liver.	*Lungs:* broncho-pneumonia. *Heart:* shews signs of commencing fatty degeneration. *Kidneys:* bilateral hydronephrosis. Encysted fæcal concretion, lying in contact with the outer surface of cæcum, about $\frac{3}{4}$ in. from the root of the appendix vermiformis.	(ii) Slight wasting of body.	(i) April 27, '01 (ii) June 2, '01	(i) 2 years and 4 months.
205 A.E.C.	C.R. 349 R.A. 141 P.M. 39/01	F	42	Carcinoma of uterus (cervix), extending down vagina and into left broad ligament. Squamous-celled growth.	Pelvic and aortic lymph-glands, *left ovary, *left adrenal gland.	*Lungs:* bronchitis; cicatrices and caseous nodules at apex of each lung. *Kidneys:* calculus in right gland, hydronephrosis on left side. Cicatrix in mucous membrane of posterior wall of stomach.	(i) Incomplete descent of cæcum, appendix lying above cæcum and immediately below and behind gall-bladder. (ii) Marked wasting of body.	(i) Jan. 19, '01 (ii) June 9, '01	(i) 4 months.
206 C.G.	C.R. 601 R.A. 237 P.M. 51/02	F	42	Carcinoma of uterus (cervix), involving body, and invading vagina and bladder; vesico-vaginal fistula. Squamous-celled growth.	.. ..	*Lungs:* some œdema and lobular pneumonia right side; hard nodule in left upper lobe. *Liver:* in condition of fatty degeneration (weight 49$\frac{1}{4}$ ozs.). *Kidneys:* marked fibrosis, slight hydronephrosis on each side. Vesico-vaginal fistula.	(i) Foramen ovale patent. (ii) Marked wasting of body.	(i) Mar. 19, '02 (ii) July 5, '02	

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207 C.B.H.	C.R. 505 R.A. 199 P.M. 11/02	F	43	Carcinoma of uterus (cervix), involving wall of corpus and broad ligaments. Squamous-celled growth.	*Lumbar lymph-glands, liver, *left supra-clavicular lymph-gland.	*Lungs:* broncho-pneumonia, right upper lobe. *Liver:* in condition of chronic congestion. *Spleen:* enlarged (weight 10 ozs.).	(i) Middle lobe to thyroid gland. Upper part of both right and left ureter double. (ii) Considerable wasting, swelling, and œdema of left leg.	(i) Dec. 11, '01 (ii) Feb. 3, '02	
208 A.McN.	C.R. { 104 294 R.A. 120 P.M. 17/01	F	44	Carcinoma of uterus (cervix), extending along broad ligament on both sides. Squamous-celled growth.	Pelvic lymph-glands, left ovary.	*Lungs:* emphysema and bronchitis. *Heart:* incompetence of aortic valves. *Liver:* in condition of fatty degeneration (weight 48½ ozs.). *Kidneys:* pyonephrosis on left side, hydronephrosis on right side. Pelvic peritonitis.	(ii) Considerable wasting of body. Artificial anus in left inguinal region. Cicatrix of median, abdominal incision.	(i) Dec. 15, '00 (ii) Mar. 9, '01	(i) 2 years. (ii) Supra-vaginal hysterectomy May 30, 1900; inguinal colotomy Feb. 30, 1901.
209 S.B.	C.R. 266 R.A. 103 P.M. 1/01	F	44	Carcinoma of uterus (cervix). Squamous-celled growth.	.. ..	*Lungs:* scattered grey miliary tubercles and small calcified nodules in both lungs; old pleural adhesions. *Heart:* recent pericarditis. *Kidneys:* left gland is represented by small sac with fibrous walls, containing 9 uric acid calculi; chronic parenchymatous nephritis on right side. Atheroma of ascending portion of arch of aorta. Numerous peritoneal adhesions in connection with spleen.	(ii) Some wasting of body.	(i) Dec. 17, '00 (ii) Jan. 10, '01	(i) 14 months. (ii) Removal of eye (?) cause.
210 E.M.	C.R. 334 R.A. 136 P.M. 33/01	F	44	Carcinoma of uterus (cervix), extending to broad ligaments and vagina almost to outlet. Squamous-celled growth.	*Inguinal, *pelvic, and aortic lymph-glands.	*Liver:* shews fatty degeneration (weight 53 ozs.), very friable. *Kidneys:* bilateral hydronephrosis. Atrophy of right adrenal gland. Hypertrophy of isthmus of thyroid gland. Brown pigmentation of skin.	(ii) Much wasting of body.	(i) Feb. 19, '01 (ii) May 19, '01	(i) 14 months.

211 C.F.	C.R. 7 R.A. 5 P.M. 16/00	F	45	Carcinoma of uterus (cervix) (?), extending into broad ligaments, bladder, and rectum.	.. ..	*Lungs :* emphysema and bronchitis. *Liver :* fatty. *Kidneys :* right side extreme hydronephrosis ; left organ enlarged and fatty.	.. .. ..	(i) July 3, 1899 (ii) Jan. 14, '00	
212 E.M.	C.R. 369 R.A. 150 P.M. 48/01	F	45	Carcinoma of uterus (cervix), involving body of organ.	.. ..	*Kidneys :* cystic disease of left gland. Old pelvic peritonitis.	(ii) Body fairly well nourished.	(i) Dec. 6, '00 (ii) July 17, '01	(i) About 6 months. (ii) Oophorectomy for menstrual pain at age of 33.
213 C.T.	C.R. 550 R.A. 218 P.M. 32/02	F	45	Carcinoma of uterus (cervix), invading vagina and bladder, and extending up from anterior fornix. Squamous-celled growth.	Lumbar lymph-glands, liver, bladder wall.	*Lungs :* emphysema ; œdema ; cicatrices at each apex. *Liver :* in condition of chronic congestion, with fatty degeneration (weight 58½ ozs.). Adenoma of right adrenal gland. *Kidneys :* slight hydronephrosis on each side. Organs pale and fatty.	(i) Foramen ovale patent. (ii) Body wasted.	(i) Sept. 25, '00 (ii) April 20, '02	
214 M.A.	C.R. 552 R.A. 219 P.M. 33/02	F	45	Carcinoma of uterus (cervix), invading vagina and bladder. Vesico-vaginal fistula.	.. ..	Aortic cusps fenestrated. *Liver :* in condition of chronic congestion. *Kidneys :* bilateral hydronephrosis. *Ovaries :* cystic papillomatous growth in right ; fistula between bladder and vagina.	(ii) Considerable wasting.	(i) Jan. 31, '02 (ii) April 22, '02	
215 E.L.M.	C.R. 566 R.A. 225 P.M. 39/02	F	45	Carcinoma of uterus (removed). Squamous-celled growth.	Right ovary.	*Liver :* in condition of fatty degeneration with fibrosis (weight 73 ozs.). *Spleen :* enlarged (weight 7 ozs.). Enormous cyst (capacity 17 pints) occupying right side of abdomen below liver and upper part of right thigh ; erosion of sacrum by white growth part of cyst wall. Contents of cyst chiefly clear brown fluid of oily consistence.	(i) Foramen ovale patent. (ii) Body wasted. Abdomen distended. Great swelling of right thigh and leg.	(i) Jan. 16, '02 (ii) May 20, '02	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
216 M.A.B.	C.R. 245 R.A. 97 P.M. 79/00	F	46	Carcinoma of uterus (cervix). Squamous-celled growth.	.. ..	*Kidneys:* chronic interstitial nephritis on right side (weight of gland $3\frac{1}{4}$ ozs.). Right iliac lymph-glands enlarged, but not affected by new growth.	(ii) Marked wasting of body.	(i) Oct. 1, '00 (ii) Dec. 4, '00	(i) 15 months.
217 M.W.	C.R. 414 R.A. 166 P.M. 64/01	F	46	Carcinoma of uterus (cervix), body extensively involved, invasion of bladder. Squamous-celled growth.	Pelvic and lumbar lymph-glands, left ovary.	*Liver:* shews fatty degeneration. *Kidneys:* bilateral hydronephrosis. Cystic disease of left ovary. Cystitis.	(ii) Some wasting of body.	(i) Sept. 2, '01 (ii) Oct. 3, '01	
218 L.J.	C.R. 598 R.A. 234 P.M. 49/02	F	46	Carcinoma of uterus (cervix), involving corpus and invading broad ligaments, ovaries, and rectum. Squamous-celled growth.	Pelvic and lumbar lymph-glands, liver, spleen.	*Lungs:* right small, pleural effusion, cicatrised and caseous area in left upper lobe; adhesions. *Kidneys:* bilateral hydronephrosis. Peritoneum presents appearances as of tuberculosis.	(ii) Marked wasting of body; some abdominal distension.	(i) Feb. 4, '02 (ii) July 2, '02	
219 E.Y.	C.R. 215 R.A. 83 P.M. 67/00	F	47	Carcinoma of uterus (cervix), involving body of organ and extending downward into vagina, bladder, and rectum. Squamous-celled growth.	Lumbar lymph-glands, both ovaries, adrenal bodies, mesentery, pancreas, gall-bladder.	*Lungs:* bronchitis lower lobes, right side. *Heart:* brown, atrophic degeneration (weight $6\frac{1}{2}$ ozs.). *Liver:* shews signs of chronic congestion. *Kidneys:* bilateral hydronephrosis. Effusion of greenish turbid fluid in peritoneal sac.	(i) Foramen ovale patent. (ii) Considerable general wasting of body.	(i) July 21, '00 (ii) Oct. 22, '00	(i) 6 months.
220 G.E.T.	C.R. 282 R.A. 112 P.M. 9/01	F	47	Carcinoma of uterus (cervix). Squamous-celled growth.	.. ..	*Lungs:* emphysema of left lung; old pleural adhesions. *Heart:* recent pericarditis. *Liver:* in condition of fatty degeneration (weight $32\frac{1}{4}$ ozs.). *Kidneys:* bilateral hydronephrosis.	(i) Foramen ovale patent. Persistent pyramidal lobe of thyroid gland. (ii) Marked wasting of body.	(i) Sept. 25, '00 (ii) Feb. 10, '01	(i) 11 months.

221 J.B.	C.R. 365 R.A. 125 P.M. 23/01	F	47	Carcinoma of uterus (cervix), invading bladder and rectum. Squamous-celled growth.	Pelvic lymph-glands.	*Heart:* in condition of fatty degeneration. *Liver:* in condition of fatty degeneration (weight $54\frac{3}{4}$ ozs.). *Kidneys:* bilateral hydronephrosis.	(ii) Some slight wasting of body. Vesico-vaginal and recto-vaginal fistulæ.	(i) Feb. 20, '01 (ii) April 5, '01	(i) 3 or 4 months.
222 E.A.	C.R. 410 R.A. 164 P.M. 62/01	F	47	Carcinoma of uterus (cervix), involving body of organ and invading broad ligaments, ovaries, and vagina. Squamous-celled growth.	*Pelvic lymph-glands.	*Lungs:* emphysema. *Heart:* fusion of two of pulmonary cusps. *Kidneys:* pyonephritis on left side.	(ii) Some wasting of body. Recto-vaginal fistula.	(i) May 10, '01 (ii) Sept. 30, '01	
223 M.A.B.	C.R. 463 R.A. 182 P.M. 78/01	F	47	Carcinoma of uterus (cervix). Squamous-celled growth.	.. ..	*Lungs:* grey miliary tubercles and caseous nodules in both lungs. *Liver:* in condition of chronic congestion. *Kidneys:* hydronephrosis on right side. Cyst in broad ligament of left side.	(ii) Much wasting of body.	(i) July 20, '01 (ii) Dec. 12, '01	.
224	C.R. 24 R.A. 8 P.M. 31/00	F	48	Carcinoma of uterus (cervix). Squamous-celled growth.	Lymph-glands, liver, lungs, intestine (peritoneum).	*Lungs:* emphysema. *Heart:* small. *Kidneys:* hydronephrosis on right side. Peritonitis. Fæcal fistula in right groin.	(ii) Body wasted. Linear scar in left inguinal region.	(i) Jan. 9, '00 (ii) Feb. 7, '00	
225 E.G.	C.R. 108 R.A. 35 P.M. 21/00	F	48	Carcinoma of uterus (cervix), involving body of organ and invading bladder. Squamous-celled growth.	Lumbar lymph-glands, liver.	*Lungs:* œdematous. *Heart:* small vegetations on aortic cusps. *Liver:* large, fatty, and friable (weight 61 ozs.). *Kidneys:* dilatation of ureters with bilateral hydronephrosis. Cystitis. Some excess of fluid in peritoneal, pericardial, and pleural sacs.	(ii) Body well nourished.	(i) May 24, '00 (ii) June 5, '00	(i) 3 months.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
226 E.B.	C.R. 129 R.A. 42 P.M. 28/00	F	48	Carcinoma of uterus (cervix), involving body of organ and invading bladder, vagina, and rectum. Squamous-celled growth.	.. ..	*Kidneys:* bilateral hydronephrosis.	(ii) Body wasted. Recto-vaginal and vesico-vaginal fistulæ.	(i) Jan. 8, '00 (ii) July 3, '00	(i) Between 3 and 4 years.
227 R.S.	C.R. 196 R.A. 75 P.M. 59/00	F	48	Carcinoma of uterus (cervix), extending down vagina to vulva. Squamous-celled growth.	Lumbar lymph-glands, both adrenal glands, both ovaries, *spleen.	*Lungs:* emphysematous, disseminated broncho-pneumonia. *Heart:* atrophied (weight 6 ozs.). *Kidneys:* bilateral hydronephrosis.	(ii) Extreme wasting of body.	(i) Feb. 17, '00 (ii) Sept. 26, '00	(i) About 18 months.
228 M.S.	C.R. 214 R.A. 82 P.M. 66/00	F	48	Carcinoma of uterus (cervix), involving body of organ and invading bladder and vagina. Squamous-celled growth.	Lumbar lymph-glands, right ovary.	*Lungs:* caseous nodules at apices on both sides, and in middle lobe of right side. *Liver:* there is a "simple" adenoma and signs of chronic congestion. *Kidneys:* hydronephrosis on right side. Small cyst in broad ligament of left side.	(i) Foramen ovale patent. (ii) Body wasted. Artificial anus in left inguinal region. Vesico-vaginal fistula.	(i) Mar. 16, '00 (ii) Oct. 19, '00	(i) 2 years. (ii) One in 1898 (? nature). Left inguinal colotomy July 5, 1900.
229 E.F.	C.R. 507 R.A. 200 P.M. 12/02	F	48	Carcinoma of uterus (cervix), involving corpus and broad ligaments. Squamous-celled growth.	Right ovary, *right iliac glands.	*Lungs:* broncho-pneumonia of right lower lobe with pleuritis. Areas of necrosis in left lung. *Heart:* in condition of brown atrophy; pericardial adhesions. *Stomach:* constricted at middle by cicatrix on posterior wall. *Liver:* in condition of chronic congestion. Single calculus in gall-bladder. *Kidneys:* shew fibrosis. Thrombosis of right femoral and external iliac veins.	(i) Patent foramen ovale. (ii) Body much wasted. Some œdema of right leg.	(i) Sept. 9, '01 (ii) Feb. 4, '02	

230 C.W.	C.R. 627 R.A. 247 P.M. 62/02	F	48	Carcinoma of uterus (cervix), invading left broad ligament and ovary. Squamous-celled growth.	Lumbar lymph-glands.	*Lungs :* œdematous. *Kidneys :* slight degree of hydronephrosis.	(ii) Body well nourished. Very anæmic.	(i) June 12, '02 (ii) Aug. 21, '02	
231 E.K.	C.R. 125 R.A. 40 P.M. 26 00	F	49	Carcinoma of uterus (cervix), involving body of organ and invading vagina. Squamous-celled growth.	Iliac lymph-glands.	*Heart :* some degree of fatty degeneration. *Liver :* in condition of fatty degeneration. Single calculus in bladder. Small parovarian cyst.	(i) Body well covered with fat.	(i) May 2, '00 (ii) June 25, '00	(i) 12 months. (ii) (?) Curettage at King's College Hospital 5 months before admission.
232 A.F.	C.R. 281 R.A. 111 P.M. 8/01	F	49	Carcinoma of uterus (cervix), invading bladder. Squamous-celled growth.	Pelvic and lumbar lymph-glands.	*Lungs :* cicatrix in substance of left apex ; old pleural adhesions. *Liver :* in condition of chronic congestion. *Kidneys :* bilateral hydronephrosis. Cicatrix in mucous membrane of posterior wall of stomach. Cyst containing turbid fluid under sheath of left psoas muscle.	(i) Foramen ovale patent. Persistent pyramidal lobe of thyroid gland, with remains of thyro-hyo-glossal duct obvious as high as hyoid bone. (ii) Considerable wasting of body.	(i) Aug. 6, '00 (ii) Feb. 8, '01	(i) 2 years.
233 E.C.	C.R. 502 R.A. 196 P.M. 8/02	F	49	Carcinoma of uterus (cervix). Squamous-celled growth.	Left ovary, *bladder.	*Lungs :* deeply congested. *Heart :* fatty, dilated, early acute pericarditis. *Liver :* fibro-fatty. A crystalline calculus in gall-bladder.	(i) Foramen ovale patent. (ii) Body very stout.	(i) Nov. 28, '01 (ii) Feb. 1, '02	
234 M.A.T.	C.R. 539 R.A. 211 P.M. 25/02	F	49	Carcinoma of uterus (cervix), involving body of organ, and invading bladder. Squamous-celled growth.	.. ..	*Lungs :* bronchitis. *Thyroid :* small adenoma. *Liver :* seat of fatty degeneration, small cyst on upper surface of right lobe. *Kidneys :* bilateral hydronephrosis. *Bladder :* fistula into vagina.	(i) Foramen ovale patent. (ii) Body well nourished.	(i) Mar. 14, '02 (ii) Mar. 29, '02	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
235 M.E.P.	C.R. 555 R.A. 221 P.M. 35/02	F	49	Carcinoma of uterus (cervix), involving body of organ, and invading broad ligaments, left ovary, vagina, and bladder; vesico-vaginal fistula. Squamous-celled growth.	Iliac and lumbar lymph-glands, liver, left ovary.	*Lungs:* emphysema, slight bronchitis. *Heart:* in condition of brown atrophy. *Kidneys:* bilateral hydronephrosis. *Bladder:* inflamed. Vesico-vaginal fistula.	(i) Two spleniculi. (ii) Body very much wasted. Swelling of left thigh and leg.	(i) Mar. 12, '02 (ii) April 29, '02	
236 E.B.	C.R. 27 R.A. 17 P.M. 34/00	F	50	Carcinoma of uterus (cervix), involving broad ligaments. Squamous-celled growth.	Lymph-glands.	*Lungs:* congestion and emphysema. *Heart:* small. Hydronephrosis on both sides, dilated ureters.	.. .. ..	(i) Jan. 1, '00 (ii) Feb. 12, '00	
237 S.A.H.	C.R. 152 R.A. 49 P.M. 35/00	F	50	Carcinoma of uterus (cervix), involving body of organ, and invading bladder. Squamous-celled growth.	.. ..	*Lungs:* emphysematous. *Liver:* shews fatty degeneration. *Kidneys:* bilateral hydronephrosis. Cystitis. Old pelvic adhesions.	(i) A Meckel's diverticulum situated about 3 feet above ileo-cæcal valve. (ii) Body slightly wasted. Vesico-vaginal fistula.	(i) Dec. 22, '99 (ii) Aug. 3, '00	(i) 8 months.
238 S.B.	C.R. 288 R.A. 116 P.M. 13/01	F	50	Carcinoma of uterus (cervix), invading vagina and bladder. Squamous-celled growth.	Inguinal and pelvic lymph-glands, right lung, left pleural membrane, liver, left adrenal gland, head of left femur, two lumbar vertebræ.	*Heart:* slight degree of dilatation of mitral and tricuspid valves. *Liver:* shews signs of chronic congestion. *Kidneys:* bilateral hydronephrosis; calculus in left gland. Atheroma of commencing portion of aorta.	(ii) Some wasting of body. Purpuric spots in skin. Recto-vaginal fistula.	(i) Sept. 24, '00 (ii) Feb. 24, '01	(i) About 12 months. (ii) Amputation of left breast in Middlesex Hospital Dec., 1895.

239 M.A.V.	C.R. 488 R.A. 191 P.M. 3/02	F	51	Carcinoma of uterus (cervix), involving vagina and bladder. Squamous-celled growth.	Lumbar lymph-gland.	*Lungs:* emphysema; lobular pneumonia in right lung, chiefly at back part. *Liver:* in condition of chronic congestion; Riedel's lobe present. *Kidneys:* pale, tough. Bilateral hydronephrosis. *Bladder:* vesico-vaginal fistula.	(i) Foramen ovale patent.	(i) Dec. 28, '01 (ii) Jan. 11, '02	
240 R.E.H.	C.R. 711 R.A. 271 P.M. 90/02	F	51	Carcinoma of uterus (cervix), invading vagina, broad ligaments, and (?) ovaries. Squamous-celled growth.	.. ..	*Lungs:* bullous emphysema on one side. *Thyroid gland:* several adenomata. *Liver:* in state of fatty degeneration (slight), (weight 58¼ ozs.). Two or three calculi in gall-bladder. *Spleen:* old infarct. Thoracic duct filled and partly distended by reddish mass inside, not infected by growth. Iliac and lumbar lymph-glands enlarged but not infected. Left supra-clavicular lymph-gland similarly enlarged.	(i) Foramen ovale patent. (ii) Wasting of body.	(i) Oct. 15, '02 (ii) Dec. 2, '02	
241 S.P.	C.R. 162 R.A. 56 P.M. 41/00	F	52	Carcinoma of uterus (cervix). Squamous-celled growth.	Liver.	*Lungs:* emphysematous. *Liver:* in condition of fatty degeneration. *Kidneys:* bilateral hydronephrosis. Cystitis.	(ii) Considerable wasting of body. Cicatrix after removal of left breast for "scirrhous cancer." Vesico-vaginal fistula.	(i) Feb. 14, '00 (ii) Aug. 17, '00	(i) 18 months. (ii) Left breast removed for cancer at St. George's Hospital 1894, but both ovaries present and atrophied. Oophorectomy at Guy's July 1899. Removal of polypus of uterus at St. George's Hospital in 1893. Second operation in left breast at Grantham Cottage Hospital 1899.

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242 E.E.	C.R. 672 R.A. 259 P.M. 77/02	F	52	Carcinoma of uterus (cervix), involving body of organ. Squamous-celled growth.	.. ..	*Kidneys :* bilateral hydronephrosis. *Bladder :* inflamed.	(i) Foramen ovale patent. (ii) Body well nourished.	(i) Oct. 1, '02 (ii) Oct. 16, '02	
243 E.H.	C.R. 687 R.A. 432 P.M. 227/02	F	52	Carcinoma of uterus (cervix ?), involving vagina and rectum. Squamous-celled growth.	Lymph-glands.	*Lungs :* congested. *Heart :* small (7½ ozs.).	.. .. ..	(i) Oct. 28, '02 (ii) Nov. 14, '02	
244 A.H.	C.R. 100 R.A. 33 P.M. 19/00	F	53	Carcinoma of uterus (cervix), invading bladder. Squamous-celled growth.	*Iliac and *lumbar lymph-glands, both ovaries, nodules on visceral peritoneum.	*Liver :* three calculi in bladder. *Kidneys :* bilateral hydronephrosis.	(ii) Body somewhat wasted.	(i) April 21, '00 (ii) May 21, '00	(i) 2 years.
245 E.K.	C.R. 191 R.A. 73 P.M. 57/00	F	53	Carcinoma of uterus (cervix), involving body of organ, and invading broad ligaments. Squamous-celled growth.	*Lumbar lymph-glands, liver, several isolated nodules in wall of bladder (not from direct extension of primary growth).	*Heart :* stenosis of mitral valve. *Liver :* seat of fatty degeneration (weight 65½ ozs.). *Kidneys :* pyonephrosis on right side.	(ii) Body well nourished.	(i) Mar. 13, '00 (ii) Sept. 23, '00	(i) 12 months.
246 A.G.	C.R. 440 R.A. 175 P.M. 71/01	F	53	Carcinoma of uterus (cervix), involving body of organ, and invading bladder, vagina, and rectum. Squamous-celled growth.	Lumbar lymph-glands.	*Lung :* one small infarct in right lung. *Liver :* in condition of chronic congestion. *Kidneys :* chronic interstitial nephritis. Several small diverticula of small intestine along mesenteric border. Small cyst in anterior part of caudate nucleus in left side of cerebrum.	(ii) Body well nourished. Recto-vaginal fistula.	(i) Oct. 12, '01 (ii) Nov. 11, '01	

247 E.L.	C.R. 536 R.A. 210 P.M. 24/02	F	53	Carcinoma of uterus (cervix), invading vagina and bladder wall; small vesico-vaginal fistula. Squamous-celled growth.	* Pleuræ, lung.	*Lungs:* bronchitis in lower lobes. *Liver:* seat of fatty degeneration (weight $47\frac{3}{4}$ oz.). *Kidneys:* marked bilateral hydronephrosis. *Bladder:* small fistula into vagina. Nodule in liver (? nature).	(ii) Body well nourished.	(i) Feb. 5, '02 (ii) Mar. 23, '02	
248 M.P.	C.R. 213 R.A. 80 P.M. 64/00	F	54	Carcinoma of uterus (cervix), invading bladder and rectum. Squamous-celled growth.	Iliac and lumbar lymph-glands, * nodules on peritoneal surface of diaphragm.	*Lungs:* cicatrices at both apices. *Kidneys:* hydronephrosis on right side. General folliculitis of œsophagus.	(i) Foramen ovale patent. (ii) Body well nourished. Artificial anus in left inguinal region. Vesico-vaginal fistula.	(i) Aug. 10, '00 (ii) Oct. 16, '00	(i) 2 years. (ii) Left inguinal colotomy Oct. 11, 1900.
249 E.A.C.	C.R. 238 R.A. 93 P.M. 77/00	F	54	Carcinoma of uterus (cervix), invading bladder. Squamous-celled growth.	.. ..	*Lungs:* small cicatrix at apex of left lung. *Kidneys:* large cyst in cortex of right gland.	(ii) Body thickly covered with fat. Vesico-vaginal fistula.	(i) Oct. 6, '00 (ii) Nov. 24, '00	(i) 9 months.
250 M.J.D.	C.R. 284 R.A. 113 P.M. 10/01	F	54	Carcinoma of uterus (cervix). Squamous-celled growth.	Liver, pancreas, mesentery.	*Lungs:* emphysematous; œdema in parts. *Heart:* dilatation of mitral and tricuspid valves. *Liver:* in condition of fatty degeneration (weight $54\frac{3}{4}$ ozs.); bladder contains numerous calculi. *Kidneys:* bilateral hydronephrosis.	(ii) Body with good covering of fat. Vesico-vaginal fistula.	(i) Oct. 18, '00 (ii) Feb. 12, '01	(i) 10 months.
251 E.P.	C.R. 642 R.A. 250 P.M. 67/02	F	51	Carcinoma of uterus (cervix), involving body and invading vagina. Vesico-vaginal fistula. Squamous-celled growth.	.. ..	*Lungs:* cicatrisation at apices, calcareous nodule in right middle lobe. *Heart:* in state of fatty degeneration (weight 14 ozs.). *Liver:* fatty degeneration, $50\frac{3}{4}$ ozs. *Kidneys:* bilateral hydronephrosis. Vesico-vaginal fistula. Iliac gland enlarged, not infected by growth.	(i) Foramen ovale patent. (ii) Body well nourished.	(i) Aug. 26, '02 (ii) Sept. 15, '02	

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252 S.P.	C.R. 181 R.A. 67 P.M. 52/00	F	55	Carcinoma of uterus (cervix), invading vagina. Squamous-celled growth.	.. ..	*Liver:* cirrhosis, well-marked "hob-nail" specimen (weight 23½ ozs.). Ascites. Two small sub-peritoneal fibro-myomata of uterus.	(ii) Body somewhat wasted.	(i) Aug. 30, '00 (ii) Sept. 12, '00	
253 S.L.	C.R. 446 R.A. 176 P.M. 72/01	F	55	Carcinoma of uterus (cervix), involving body of organ, and invading rectum. Squamous-celled growth.	Lumbar lymph-glands, liver, *gall-bladder, left ovary.	*Lungs:* emphysematous, cicatrisation at left apex. *Heart:* old endocarditis (aortic valve). *Liver:* shews signs of chronic congestion. *Kidneys:* extreme hydronephrosis on each side. Cystic degeneration of right ovary.	(ii) Marked wasting of body. Recto-vaginal fistula.	(i) Aug. 24, '01 (ii) Nov. 18, '01	
254 E.B.	C.R. 541 R.A. 211 P.M. 26/02	F	55	Carcinoma of uterus (cervix), involving body of organ, and invading vagina. Squamous-celled growth.	Right ovary, lumbar lymph-glands.	Pericarditis and adhesions. Heart enlarged (weight 14½ ozs.); slight incompetence with atheroma of aortic valve. *Liver:* seat of fatty degeneration (weight 58 ozs.). *Kidneys:* bilateral hydronephrosis.	(ii) Some wasting of body.	(i) Jan. 15, '02 (ii) April 8, '02	
255 G.H.	C.R. 397 R.A. 158 P.M. 56/01	F	56	Carcinoma of uterus (cervix), with large mass of new growth occupying pouch of Douglas. Squamous-celled growth.	Lumbar lymph-glands, spleen, * right adrenal gland.	*Lungs:* emphysematous. *Liver:* in condition of fatty degeneration. *Kidneys:* bilateral hydronephrosis.	(ii) Body wasted and extremely anæmic.	(i) Jan. 24, '01 (ii) Sept. 4, '01	

256 M.J.B.	C.R. 52 R.A. 16 P.M. 4/00	F	57	(i) Carcinoma of uterus (cervix). Squamous-celled growth. (ii) Carcinoma of gall-bladder. Columnar-celled growth; tubular arrangement.	*Lumbar lymph-glands, left ovary and tube, spleen, liver, lungs, heart (wall of right ventricle), sub-cutaneous tissue of left axilla. All the above contain growth conforming to the type of that in the cervix.	*Liver:* a single calculus in bladder. *Kidneys:* left kidney large and pale; pyonephrosis on right side. Cystitis. Hydrosalpinx on left side.	(ii) Body well nourished.	(i) Dec. 28, 1899 (ii) Mar. 18, '00	
257 C.L.	C.R. 311 R.A. 128 P.M. 26/01	F	57	Carcinoma of uterus (cervix); after operation a large mass of new growth occupies pelvis. Squamous-celled growth.	.. ..	*Heart:* minute vegetations on anterior and right posterior aortic cusps. *Kidneys:* hydronephrosis on right side, pyelitis on left side.	(ii) Extreme wasting of body.	(i) Feb. 12, '01 (ii) April 12, '01	(i) 18 months. (ii) Hysterectomy, Sept. 1899.
258 A.J.B.	C.R. 377 R.A. 152 P.M. 50/01	F	57	Carcinoma of uterus (cervix), involving body of organ, and invading bladder and rectum. Squamous-celled growth.	Iliac lymph-glands, parietal and visceral peritoneum, omentum.	*Lungs:* cicatrisation at right apex; calcareous nodule in middle lobe. *Heart:* minute vegetations on posterior aortic cusp.	(i) Foramen ovale patent. (ii) Body well covered with fat. Recto-vaginal and vesico-vaginal fistulæ.	(i) Mar. 18, '01 (ii) July 27, '01	(i) More than $2\frac{1}{2}$ years (? 6).
259 A.H.	C.R. 686 R.A. 264 P.M. 82/02	F	57	Carcinoma of uterus (cervix), involving body of organ, and invading broad ligaments, vagina, bladder and rectum. Vesico-vaginal and recto-vaginal fistula. Squamous-celled growth.	Liver.	*Heart:* small vegetations on mitral valve at line of attachment. *Liver:* in state of fatty degeneration (weight $50\frac{3}{4}$ ozs.). *Pancreas:* much interstitial fat. *Kidneys:* marked bilateral hydronephrosis. Vesico-vaginal and recto-vaginal fistula.	(ii) Body well nourished.	(i) July 8, '02 (ii) Nov. 13, '02	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
260 **E.W.**	C.R. 144 R.A. 46 P.M. 32/00	F	58	Carcinoma of uterus (cervix), involving body of organ, and invading vagina and bladder. Squamous-celled growth.	Iliac lymph-glands.	*Heart:* dilatation of mitral and tricuspid valves. *Liver:* in condition of fatty degeneration (weight 53½ ozs.). Umbilical hernia (containing omentum.)	(i) Right lung has only two lobes. (ii) Body well nourished.	(i) June 21, '00 (ii) July 29, '00	(i) 6 years.
261 **S.L.C.**	C.R. 724 R.A. 281 P.M. 95/02	F	58	Carcinoma of uterus (cervix), invading vagina and broad ligaments. Squamous-celled growth.	Left ovary.	Pleura on left side adherent. *Heart:* left ventricle hypertrophied (weight of organ 13¼ ozs.) *Kidneys:* bilateral hydronephrosis. Lumbar lymph-glands slightly enlarged.	(ii) Body well nourished.	(i) Sept. 17, '02 (ii) Dec. 20, '02	
262 **M.A.H.**	C.R. 625 R.A. 246 P.M. 61/02	F	59	Carcinoma of uterus (cervix), involving body of organ, and invading bladder. Squamous-celled growth.	.. ..	*Lungs:* emphysema. *Heart:* hypertrophy of left ventricle. *Kidneys:* pyonephrosis on right side, hydronephrosis on left.	.. .. ..	(i) May 26, '02 (ii) Aug. 13, '02	
263 **E.T.**	C.R. 677 R.A. 260 P.M. 78/02	F	59	Carcinoma of uterus (cervix), involving body of organ, and invading vagina. Small vesico-vaginal fistula. Squamous-celled growth.	.. ..	*Lungs:* emphysema, œdema right side. *Heart:* in condition of brown atrophy. Slight atheroma of aortic cusps. *Kidneys:* bilateral hydronephrosis. Cystitis, vesico-vaginal fistula. Lumbar lymph-glands appear enlarged, but not infected.	(ii) Much wasting of body.	(i) Nov. 8, '00 (ii) Oct. 24, '02	
264 **S.H.**	C.R. 139 R.B. 93 P.M. 162/00	F	60	Carcinoma of uterus (cervix). Squamous-celled growth.	.. ..	*Heart:* muscle shews marked fatty degeneration. *Liver:* marked fatty degeneration. *Spleen:* enlarged.	.. .. ..	(i) July 9, '00 (ii) July 20, '00	(ii) Recent hysterectomy.

265 E.C.	C.R. 657 R.A. 254 P.M. 72/02	F	60	Carcinoma of uterus (cervix), involving body, and invading vagina, rectum and bladder. Vesico-vaginal and recto-vaginal fistulæ. Squamous-celled growth.	Lumbar lymph-glands.	*Lungs:* small calcareous nodule at right base. *Liver:* in state of fatty degeneration (weight 53 ozs.). Single calculus in gall-bladder. *Kidneys:* granular. Vesico-vaginal and recto-vaginal fistulæ.	(ii) Body well nourished. Two small subcutaneous lipomata on left side at root of neck.	(i) July 12, '02 (ii) Oct. 1, '02	
266 E.S.	C.R. 475 R.A. 187 P.M. 83/01	F	61	Carcinoma of uterus (cervix), involving body of organ, and invading vagina. Squamous-celled growth.	.. ..	*Lungs:* emphysematous. *Heart:* small, fibroid degeneration. *Kidneys:* chronic interstitial nephritis.	.. .. ..	(i) Oct. 2, '01 (ii) Dec. 24, '01	
267 E.D.	C.R. 185 R.A. 70 P.M. 54/00	F	62	Carcinoma of uterus (cervix), invading bladder, vagina, and rectum. Squamous-celled growth.	Iliac lymph-glands.	*Lungs:* emphysematous, cicatrisation at right apex. *Heart:* in condition of atrophy, with brown degeneration. *Liver:* slight degree of fatty degeneration. *Kidneys:* bilateral hydronephrosis.	.. .. ..	(i) July 7, '00 (ii) Sept. 17, '00	
268 R.S.	C.R. 420 R.A. 167 P.M. 65/01	F	62	Carcinoma of uterus (cervix), involving body, and invading bladder and rectum. Squamous-celled growth.	*Pelvic and *lumbar lymph-glands.	*Lungs:* emphysema of right upper lobe. *Heart:* atheroma of aortic valve. *Liver:* in condition of fatty degeneration. *Kidneys:* bilateral hydronephrosis, most marked on left side.	(ii) Body very large and well covered with fat. Œdema of left leg. Recto-vaginal fistula.	(i) Sept. 18, 1899 (ii) Oct. 9, '01	
269 A.R.	C.R. 145 R.A. 47 P.M. 33/00	F	63	Carcinoma of uterus (cervix), involving body of organ, and invading bladder and vagina.	.. ..	*Lungs:* calcareous nodule and cicatrisation at left apex. *Kidneys:* bilateral hydronephrosis. Calcification of a portal gland. Calcareous nodule in left lobe of thyroid gland.	(ii) Slight wasting of body. Vesico-vaginal fistula.	(i) June 11, '00 (ii) July 29, '00	(i) 2 years.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
270 S.B.	C.R. 300 R.A. 124 P.M. 22/01	F	63	Carcinoma of uterus (cervix), invading vagina and bladder. Squamous-celled growth.	Lumbar lymph-glands, right ovary.	*Lungs:* cicatrisation at left apex; pleural adhesions at right apex. *Heart:* recent pericarditis; slight degree of incompetence of aortic valves. *Kidneys:* bilateral hydronephrosis. Small thick-walled cyst in thyroid gland.	(ii) Body well nourished.	(i) Mar. 12, '01 (ii) Mar. 19, '01	(i) 10 months.
271 L.J.C.	C.R. 208 R.A. 79 P.M. 63/00	F	64	Carcinoma of uterus (cervix), involving body of organ, and invading bladder. Squamous-celled growth.	Both ovaries.	*Lungs:* cicatrisation at apex of right lung. *Liver:* in condition of chronic congestion. *Kidneys:* hydronephrosis on left side. Calcareous nodules at root of mesentery. Some excess of a turbid fluid in cerebral ventricles.	(ii) Extreme wasting of body.	(i) May 21, '00 (ii) Oct. 8, '00	(i) 3 years.
272 E.F.	C.R. 504 R.A. 198 P.M. 9/02	F	66	Carcinoma of uterus (cervix), involving corpus. Squamous-celled growth.	Ovaries, lumbar glands.	*Lungs:* emphysema. *Thyroid gland:* cyst in right lobe. *Liver:* fatty degeneration. *Kidneys:* bilateral pyonephrosis and pyonephritis. *Bladder:* inflamed.	(i) Foramen ovale patent.	(i) May 1, '01 (ii) Feb. 2, '02	
273 A.C.	C.R. 477 R.A. 188 P.M. 84/01	F	67	Carcinoma of uterus (cervix), involving body of organ. Squamous-celled growth.	Lumbar lymph-glands.	*Lungs:* emphysematous. *Kidneys:* hydronephrosis on right side.	.. .. ..	(i) Sept. 14, '01 (ii) Dec. 25, '01	

274 S.A.G.	C.R. 666 R.A. 257 P.M. 76/02	F	67	Carcinoma of uterus (cervix), involving body of organ. Squamous-celled growth.	.. ..	*Lungs :* cicatrisation at each apex ; slight bronchitis. *Heart :* incompetence of aortic valve, due to atheroma of cusps (weight 12½ ozs.). *Liver :* in state of fatty degeneration (weight 49½ ozs.) ; gall-bladder tightly contracted on calculi. *Kidneys :* some hydronephrosis on both sides. Lumbar lymph-glands enlarged, but not the seat of secondary growth.	(i) Well developed episternal bones. (ii) Wasting of body.	(i) Mar. 25, '02 (ii) Oct. 8, '02	
275 E.G.	C.R. 259 R.A. 102 P.M. 84/00	F	69	Carcinoma of uterus (cervix), invading vagina and peritoneum of pouch of Douglas. Squamous-celled growth.	Lungs.	*Kidneys :* pyonephrosis on right side. Advanced atheroma of abdominal aorta. Extensive pelvic peritoneal adhesions. Fibroid degeneration of left adrenal gland.	(ii) Extreme wasting of body. Vesico-vaginal fistula.	(i) Dec. 7, '00 (ii) Dec. 31, '00	
276 L.B.	C.R. 32 R.A. 11 P.M. 38/00	F	73	Carcinoma of uterus (cervix), involving vaginal wall and broad ligaments and bladder.	Lumbar lymph-glands ; liver.	*Lungs :* emphysema. *Heart :* recent pericardial exudate. *Gall-bladder :* contains numerous small calculi. *Kidneys :* pelves dilated.	.. .. ..	(i) Jan. 8, '00 (ii) Feb. 14, '00	
277 H.L.	C.R. 312 R.A. 129 P.M. 27/01	F	78	Carcinoma of uterus (cervix), invading vagina and rectum. Squamous-celled growth.	Right ovary.	*Heart :* dilatation of mitral and tricuspid valves. *Kidneys :* bilateral hydronephrosis. Atheroma of arch of aorta. Large umbilical hernia.	(ii) Body well nourished.	(i) Oct. 10, '00 (ii) April 13, '01	(i) 10—12 months.
278 L.C.	C.R. 436 R.A. 174 P.M. 70/01	F	44	Carcinoma of uterus (? cervix), involving body of organ, and invading vagina. Columnar-celled growth.	Left ovary.	*Lungs :* disseminated lobular pneumonia ; cicatrisation at right apex. *Liver :* in condition of fatty degeneration. *Kidneys :* hydronephrosis on left side. Papillomatous growth from posterior wall of bladder.	.. .. ..	(i) Dec. 13, '00 (ii) Nov. 6, '01	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
279 E.J.W.	C.R. 487 R.B. 302 P.M. 7/02	F	48	Carcinoma of uterus (corpus), involving wall of rectum. Tubular growth.	Lumbar lymph-glands.	*Lungs :* congested. *Heart :* small, muscle fatty. *Liver :* small, fatty. *Kidneys :* small ; some fibrosis ; capsules irregularly adherent.	(ii) Artificial anus in left inguinal region.	(i) Jan. 9, '02 (ii) Jan. 11, '02	(ii) Inguinal colotomy, left.
280 M.A.B.	C.R. 157 R.A. 52 P.M. 38/00	F	59	Carcinoma of uterus (corpus). Columnar-celled growth.	* Right adrenal gland.	*Liver :* fatty degeneration, with fibrotic change. *Kidneys :* hydronephrosis on right side, pyonephrosis on left side. Cystitis. Cicatrices in mucous membrane of posterior wall of stomach near lesser curvature ; adhesions between stomach and pancreas.	(ii) Body well covered with fat.	(i) Sept. 5, 1898 (ii) Aug. 7, '00	
281 A. de C.	C.R. 455 R.A. 180 P.M. 76/01	F	62	Carcinoma of uterus (cervix) ; body of organ not involved. Columnar-celled growth.	Liver, left lung.	*Lungs :* emphysematous. *Heart :* old pericardial adhesions ; endocardium thickened ; atheroma of aortic valve. *Liver :* in condition of fatty degeneration. *Kidneys :* chronic interstitial nephritis.	(ii) Slight wasting of body.	(i) Aug. 21, '01 (ii) Nov. 30, '01	
282 E.S.	C.R. 721 R.A. 278 P.M. 92/02	F	68	Carcinoma of uterus (cervix), involving lowest part of body of organ, and invading vagina and bladder ; vesico-vaginal fistula. Columnar-celled growth.	.. ..	*Lungs :* emphysema ; pericardial adhesions. *Liver :* in state of fatty degeneration (weight $53\frac{1}{2}$ ozs.). ***Stomach :*** small petechiæ in mucous membrane. ***Bladder :*** inflamed. Large abscess cavity extending from level of left kidney to half-way down left thigh.	(ii) Body well nourished.	(i) April 2, '02 (ii) Dec. 18, '02	

283 E.P.	C.R. 216 R.A. 85 P.M. 70/00	F	71	Carcinoma of uterus (corpus). Columnar-celled growth.	.. ..	*Lungs:* pneumonia of right lowest lobe. *Heart:* fatty degeneration; mitral and tricuspid valves dilated. *Liver:* in condition of fatty degeneration; one large and numerous small calculi in bladder. Thyroid gland contains two large cysts filled with colloid material. Sloughing polypoid fibromyoma of uterus.	(ii) Body well nourished.	(i) Oct. 3, '00 (ii) Nov. 7, '00	(ii) Abdominal hysterectomy Oct. 23, 1900.
284 W.T.	C.R. 569 R.A. 226 P.M. 40/02	M	53	Carcinoma of prostate gland, invading bladder, peri-rectal connective tissue and wall of rectum. Spheroidal-celled growth.	*Iliac and lumbar lymph-glands, * peritoneum, liver.	*Lungs:* cicatrices at each apex. *Kidneys:* bilateral hydronephrosis.	(ii) Much wasting of body.	(i) Mar. 24, '02 (ii) May 21, '02	
285 G.K.S.	C.R. 244 R.A. 96 P.M. 79/00	M	68	Carcinoma of prostate, invading bladder. Spheroidal-celled growth.	Right testicle.	*Kidneys:* left gland fibrotic; pyonephritis, with dilatation of pelvis and ureter on right side. Small adenoma of thyroid gland. Considerable thickening of the periosteum over the left half of the frontal bone. Dura mater intimately adherent to skull. Calcification of fine fibres running across inner surface of trachealis muscle. Mesenteric glands enlarged; calcareous nodules in mesentery.	(ii) Body considerably wasted.	(i) Sept. 15, '00 (ii) Dec. 3, '00	
286 J.K.	C.R. 9 R.A. 6 P.M. 18/00	M	73	Carcinoma of prostate. Spheroidal-celled growth.	Prevertebral lymph-glands, lungs, kidneys, wall of bladder.	*Heart:* mitral and aortic cusps slightly thickened.	.. .. ..	(i) Jan. 18, '00 (ii) Jan. 19, '00	
287 G.C.	C.R. 307 R.A. 127 P.M. 25/01	M	44	Carcinoma of glans penis, recurrence in skin of perineum after operation. Squamous-celled growth.	Inguinal lymph-glands on both sides.	*Lungs:* emphysema of right lung; bronchiectasis of left lung with pneumonia of lower lobe.	(ii) Much wasting of body.	(i) June 18, '00 (ii) April 4, '01	(i) 12 months. (ii) Amputation of penis (complete with crura) June 13, 1899. Glands began to enlarge Oct. 1899.

No.	Reference Numbers.	Sex	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
288 D.N.	C.R. 227 R.A. 89 P.M. 72/00	M	73	Carcinoma of glans penis, invading scrotum and prostate gland. Squamous-celled growth.	.. ..	*Lungs:* bronchitis. *Heart:* pericardium adherent to left ventricle. *Liver:* in condition of fatty degeneration; calculi in bladder. *Kidneys:* chronic interstitial nephritis. Embolism of splenic artery; spleen of globular shape. Cystitis. Fibroid degeneration of right testicle.	(ii) Some wasting of body.	(i) July 19, '00 (ii) Nov. 8, '00	
289 G.H.	C.R. 51 R.A. 15 P.M. 3/00	M	26	Carcinoma of right testicle, extending along right spermatic cord. Columnar-celled growth.	Lumbar and posterior mediastinal lymph-glands, liver, spleen, lungs, cæcum.	*Lungs:* chronic pleural effusion on each side.	(i) Foramen ovale not quite closed. (ii) Body well nourished.	(i) Mar. 2, '00 (ii) Mar. 16, '00	
290 M.C.	C.R. 56 R.A. 19 P.M. 5/00	M	51	Carcinoma of scrotum, extending to subcutaneous tissue of groin on each side. Squamous-celled growth.	Left inguinal lymph-glands.	*Lungs:* calcareous nodules in both apices. *Heart:* mitral and tricuspid valves dilated; some small vegetations on cusps of aortic valve. *Liver:* single calculus in bladder.	(ii) Body much wasted.	(i) Oct. 10, 1899 (ii) Mar. 20, '00	
291 J.W.	C.R. 168 R.A. 60 P.M. 45/00	M	86	Carcinoma of right breast. Spheroidal-celled growth.	Right axillary lymph-glands.	*Lungs:* emphysematous, cicatrisation at right apex. *Heart:* mitral and tricuspid valves dilated, former widely; aortic valve atheromatous. *Liver:* in condition of chronic congestion; a few small calculi in bladder. Polypoid myoma growing from stomach close to pylorus. Double inguinal hernia.	(ii) Body somewhat wasted. Cicatrisation and contraction of left lower lip, said to be the result of operation for removal of "cancer."	(i) Feb. 14, '00 (ii) Aug. 27, '00	

292 F.C	C.R. 689 R.B. 434 P.M. 241/02	F	38	Carcinoma of right breast. Spheroidal-celled growth.	.. ..	*Lungs* : pulmonary embolism. *Heart* : cardiac embolism. Thrombosis of sup. ven. cav.	.. .. ..	(i) Nov. 13, '02 (ii) Nov. 29, '02	
293 E.S.	C.R. 503 R.A. 197 P.M. 10/02	F	40	Carcinoma of left breast. Spheroidal-celled growth.	*Subcutaneous tissue of front of chest, *left axillary glands, right cervical lymph-gland, lungs, liver, gall-bladder, right ovaries, portal lymph-gland.	*Lungs*: left organ collapsed, pleural effusion both sides.	(ii) Some wasting of body. Left arm enormously swollen and œdematous.	(i) Jan. 13, '02 (ii) Feb. 3, '02	
294 A.U.	C.R. 36 R.A. 18 P.M. 11/00	F	41	Carcinoma of right breast. Spheroidal-celled growth.	Lumbar lymph-gland.	Interstitial fibromyoma of uterus.	(i) Persistent thymus gland of considerable size. (ii) Marked wasting of body.	(i) Jan. 16, '00 (ii) April 18, '00	
295 C.B.	C.R. 3 R.A. 3 P.M. 12/00	F	42	Carcinoma of right breast. Spheroidal-celled growth.	Subcutaneous tissue of thorax and neck, left breast, liver, ovaries.	*Lungs* : congested. *Cystic duct* : occluded.	.. .. ..	(i) Mar. 2, 1899 (ii) Jan. 7, '00	(ii) Removal of right breast.
296 M.B.	C.R. { 47 278 R.A 109 P.M. 6/01	F	45	Carcinoma of right breast. Spheroidal-celled growth.	Right axillary lymph-glands, liver, gall-bladder, body of sphenoid bone.	*Lungs* : caseous nodule and puckered cicatrix at apex of left lung; 15 ozs. of fluid in right pleural sac.	(i) Foramen ovale patent. (ii) Extreme wasting of body. Ovaries removed Mar. 1900.	(i) May 10, '00 (ii) Feb. 5, '01	(i) 10 months. (ii) Oophorectomy and nodule removed Mar. 14, 1900.
297 F.H.	C.R 602 R.A. 238 P.M. 52/02	F	45	Carcinoma of left breast.	Subcutaneous tissue, pleuræ, pericardium, peritoneum (visceral and parietal layers of each).	*Lungs* : right side, bronchitis, broncho-pneumonia, and abscess. Pleural effusions. *Gall-bladder* : small calculi. *Kidneys* : granular.	(ii) Body much wasted. The subcutaneous deposits of growth occur all over trunk and neck, and are many of them of large size.	(i) July 8, '01 (ii) July 5, '02	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
298 E.J.P.	C.R. 200 R.A. 77 P.M. 61/00	F	46	Carcinoma of right breast, affecting left breast by direct extension. Spheroidal-celled growth.	*Axillary and cervical lymph-glands, right pleura, both lungs, liver.	*Lungs:* pleural effusion on both sides. Interstitial fibromyoma of uterus.	(ii) Body well nourished.	(i) Aug. 28, '00 (ii) Oct. 4, '00	(i) 3 years.
299 E.H.	C.R. 221 R.A. 86 P.M. 68/00	F	47	Carcinoma of right breast. Extensive invasion of subcutaneous tissue of chest. Spheroidal-celled growth.	Right axillary and supra-clavicular lymph-glands, apex of right lung, *thoracic vertebræ, three separate foci in cerebrum.	*Liver:* shews fatty degeneration (weight 51 ozs.).	(i) Middle lobe of thyroid gland well developed. (ii) Body somewhat emaciated.	(i) Sept. 6, '00 (ii) Nov. 2, '00	
300 F.T.	C.R. 183 R.B. 114 P.M. 92/01	F	49	Carcinoma of right breast (removed, no recurrence). Spheroidal-celled growth.	Lungs, right; liver.	*Lungs:* right collapsed, left congested. Pleural effusion both sides. *Heart:* chronic thickening mitral cusps.	.. .. ..	(i) Mar. 15, '01 (ii) April 19, '01	
301 M.A.H.	C.R. 169 R.A. 61 P.M. 46/00	F	50	Carcinoma of left breast. Spheroidal-celled growth.	Left axillary lymph-glands, lungs, liver, *spleen, *thoracic vertebræ.	*Lungs:* cicatrisation at right apex; broncho-pneumonia in left lower lobe. *Liver:* numerous faceted calculi in bladder. *Kidney:* oxalate of lime calculus in right gland. Cystitis.	(ii) Some wasting of body.	(i) Jan. 12, '00 (ii) Aug. 27, '00	
302 L.D.	C.R. 473 R.A. 185 P.M. 82/01	F	50	Carcinoma of right breast. Spheroidal-celled growth.	Right axillary lymph-glands, left breast, lungs, liver, kidney, *lumbar vertebræ.	*Lungs:* œdema of right lung. *Kidneys:* chronic interstitial nephritis. Small fibromyoma of uterus, and cervical polypus.	(ii) Body well nourished.	(i) Dec. 21, '01 (ii) Dec. 23, '01	

303 **E.H.I.**	C.R. 269 R.A. 105 P.M. 3/01	F	51	Carcinoma of both breasts (? primary on left side), invading pericardium through chest wall. Spheroidal-celled growth.	*Axillary and *supra-clavicular lymph-glands, liver.	Effusion into left pleural sac.	(ii) No obvious wasting of body.	(i) Jan. 12, '00 (ii) Jan. 14, '01	
304 **J.H.**	C.R. 472 R.A. 184 P.M. 80/01	F	51	Carcinoma of left breast. Spheroidal-celled growth.	Lungs, *bronchial lymph-glands, visceral pleura, liver.	*Lungs:* right bronchus occluded by new growth. *Liver:* in condition of chronic congestion. Effusion into pleural, pericardial, and peritoneal sacs.	(ii) Considerable wasting of body. Left breast removed by operation; no local recurrence.	(i) Nov. 19, '01 (ii) Dec. 20, '01	
305 **M.A.G.**	C.R. 179 R.A. 66 P.M. 51/00	F	53	Carcinoma of left breast. Spheroidal-celled growth.	Focus of growth in right breast, *axillary and *supra-clavicular lymph-glands on both sides, liver.	*Liver:* in condition of fatty degeneration (weight 56 ozs.). Multilocular ovarian cyst, with papillomatous growths on right side.	(ii) Body well nourished.	(i) Aug. 8, '00 (ii) Sept. 11, '00	(i) 12 months. (ii) Amputation of left breast in Nov. 1899 (St. Thomas's Hospital).
306 **S.B.**	C.R. 272 R.A. 107 P.M. 4/01	F	53	Carcinoma of right breast. Spheroidal-celled growth.	*Right supra-clavicular lymph-glands, *nodule in middle lobe of right lung, liver.	*Lungs:* Broncho-pneumonia; 16 ozs. of fluid in right pleura. *Heart:* 12 ozs. of fluid in pericardium. *Liver:* three faceted stones in gall-bladder. *Kidneys:* slight degree of parenchymatous nephritis, both glands.	(ii) Some wasting of body.	(i) Jan. 1, '01 (ii) Jan. 18, '01	(ii) Right breast removed 2 years ago. Recurrence in Sept. 1900 in cicatrix.
307 **S.W.**	C.R. 192 R.A. 74 P.M. 58/00	F	55	Carcinoma of right breast, extending widely over chest. Spheroidal-celled growth.	Axillary* and supra-clavicular lymph-glands on both sides both lungs, liver, pancreas, right adrenal gland, parietal bones, cranial aponeurosis, shaft of left humerus.	Some excess of fluid in lateral cerebral ventricles. One small sub-peritoneal and two interstitial fibromyomata of uterus.	(ii) Excessive wasting of body.	(i) April 17, '00 (ii) Sept. 24, '00	(i) 10 years. (ii) Amputation of right breast, 1891, followed by recurrence in cicatrix and second operation in 1894 (Ramsgate Hospital).
308 **S.K.**	C.R. 313 R.A. 130 P.M. 28/01	F	55	Carcinoma of right breast. Spheroidal-celled growth.	Liver, wall of gall-bladder, portal and aortic lymph-glands.	*Lungs:* large hæmorrhagic infarct in left lower lobe.	(ii) Excessive wasting of body: jaundice.	(i) Mar. 12, '01 (ii) April 13, '01	(i) 2½ years.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
309 L.G.	C.R. 490 R.A. 193 P.M. 5/02	F	56	Carcinoma of left breast, invading sternum. Spheroidal-celled growth.	Right breast, lungs, liver, vertebra (lumbar).	*Lungs:* left lower lobe almost airless; dense pleural adhesions left side. *Heart:* musculature soft. *Liver:* in condition of chronic congestion. *Kidneys:* granular.	(i) Foramen ovale patent. (ii) Body wasted. Left arm enormously swollen and œdematous.	(i) May 24, '01 (ii) Jan. 13, '02	
310 A.C.	C.R. 549 R.A. 217 P.M. 31/02	F	57	Carcinoma of left breast. Spheroidal-celled growth.	Left axillary and supra-clavicular lymph-glands, *aortic lymph-glands, ? left suprarenal capsule.	*Lungs:* left collapsed, pleural effusion. *Liver:* seat of fatty degeneration (weight 72½ ozs.). Single calculus in gall-bladder. *Pancreas:* fatty infiltration. Small umbilical hernia.	(ii) Body very stout.	(i) Feb. 21, '02 (ii) April 17, '02	
311 C.L.	C.R. 138 R.A. 45 P.M. 31/00	F	58	Carcinoma of left breast. Spheroidal-celled growth.	Axillary lymph-glands, liver, fifth lumbar vertebra.	*Lungs:* disseminated broncho-pneumonia. *Heart:* atrophied, with brown degeneration; minute vegetation on one of aortic cusps. *Kidneys:* chronic interstitial nephritis. Bronchial cartilages calcified.	(ii) Extreme wasting of body. Contracture of hamstring muscles.	(i) Jan. 31, '00 (ii) July 19, '00	
312 E.B.	C.R. 226 R.A. 88 P.M. 71/00	F	58	Carcinoma of right breast. Spheroidal-celled growth.	Eighth and ninth thoracic vertebræ, both femora, frontal bone.	*Heart:* small; aortic valves atheromatous and incompetent. *Liver:* in condition of fatty degeneration; small calculi in bladder. *Kidneys:* pale and firm; small uric acid calculi in pelvis of each. *Stomach:* much dilated, walls thinned; cicatrix on posterior wall. Cystitis.	(ii) Body much wasted. Removal of primary growth by operation; no local recurrence. Both femora broken at site of new growth.	(i) Dec. 20, 1897 (ii) Nov. 5, '00	(ii) Amputation of right breast.

313 E.B.	C.R. 298 R.A. 123 P.M. 21/01	F	58	Carcinoma of right breast, infiltrating sternum. Spheroidal-celled growth.	Right axillary and cervical lymph-glands, left breast, right pleura, *portal gland.	*Lungs:* bronchitis. *Heart:* dilatation of mitral and tricuspid valves. *Liver:* in condition of fatty degeneration (weight 60 ozs.).	(ii) Body well covered with fat.	(i) Oct. 18, '00 (ii) Mar. 13, '01	(i) 6 years. (ii) Removal of right breast April 1897, recurrence in cicatrix of operation 1898, left breast began to enlarge October 1899.
314 E.C.	C.R. 135 R.A. 44 P.M. 30/00	F	59	Carcinoma of right breast, extending over left breast. Spheroidal-celled growth.	*Axillary and *cervical lymph-glands, mediastinal lymph-glands, liver, mesenteric lymph-glands.	*Lungs:* thickening of pleural covering of both apices; small caseous nodule at left apex. *Heart:* atrophy, with brown degeneration; minute vegetation on one of aortic cusps. *Liver:* calculi in bladder. Calcification of mesenteric glands. Small adenoid polypus of rectum.	(ii) Extreme wasting of body. Advanced œdema of right arm.	(i) July 4, '00 (ii) July 17, '00	
315 A.W.	C.R. 362 R.A. 147 P.M. 45/01	F	59	Carcinoma of right breast. Spheroidal-celled growth.	*Axillary supra-clavicular lymph-glands, *left pleural membrane, left lung, liver, aortic lymph-glands, right kidney.	*Lungs:* 4 pints of effusion in left pleural sac; left lung collapsed; bronchitis of right lung. *Heart:* complete fusion of cusps at aortic ring; incompetence. Several subserous and interstitial fibromyomata of uterus.	(ii) Body well covered with fat.	(i) June 17, '01 (ii) July 3, '01	(i) 4 years.
316 E.S.	C.R. 173 R.A. 62 P.M. 47/00	F	60	Carcinoma of left breast. Spheroidal-celled growth.	Left axillary and *supra-clavicular lymph-glands, *sternum, head of pancreas, *aortic glands.	*Heart:* hypertrophy of left ventricle. *Stomach:* three ulcers of mucous membrane, situated on posterior wall near to the pylorus.	.. .. ..	(i) Feb. 20, '00 (ii) Sept. 3, '00	(i) 15 years.
317 J.D.C.	C.R. 483 R.A. 189 P.M. 1/02	F	63	Carcinoma of left breast. Spheroidal-celled growth.	Cervical glands on both sides at root of neck, liver, peritoneum, *lumbar vertebra.	*Lungs:* calcareous nodule right upper lobe; pleural adhesions right lower lobe. *Liver:* shews fatty degeneration. Interstitial fibromyomata of uterus.	(i) Left kidney represented by a small mass of tissue 2 cm. long. (ii) Not much wasting.	(i) Nov. 30, '01 (ii) Jan. 5, '02	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
318 A.B.	C.R. 431 R.A. 171 P.M. 15/02	F	64	Carcinoma of right breast (removed), healed ulcer at site of right breast, small subcutaneous nodule at margin, intensely hard white mass 1 inch in diameter at outer margin, near axilla. Spheroidal-celled growth.	Left axillary lymph-gland, mass behind sternum.	*Lungs:* bronchitis and bronchopneumonia; pericarditis. *Liver:* shews fatty degeneration. Gall-bladder full of small calculi, its walls also are partly calcified. Small erosion at os uteri.	(ii) Body well nourished.	(i) Sept. 19, 1898 (ii) Feb. 19, '02	
319 M.A.E.H.	C.R. 404 R.A. 161 P.M. 59/01	F	65	Carcinoma of left breast, with extension to subcutaneous tissue over front of chest. Spheroidal-celled growth.	*Left axillary lymph-glands.	*Lungs:* pleural effusion on each side, collapse of left lower lobe. *Heart:* slight thickening of all valves, which also shew small vegetations. *Kidneys:* hydronephrosis on right side. Uterine cavity presents polypoid fibromyoma.	(ii) Considerable wasting of body; left arm œdematous, shoulder and elbow joints anchylosed.	(i) July 7, '00 (ii) Sept. 17, '01	
320 E.P.	C.R. 617 R.B. 382 P.M. 149/02	F	65	Carcinoma of right breast. Spheroidal-celled growth.	.. ..	*Lungs:* bronchitis and œdema, effusion of turbid fluid into right pleural cavity. *Liver:* fatty. *Spleen:* a little enlarged. *Kidneys:* fatty.	.. .. ..	(i) July 26, '02 (ii) Aug. 3, '02	
321 A.E.F.	C.R. 318 R.B. 186 P.M. 95/01	F	66	Carcinoma of left breast. Spheroidal-celled growth.	None.	Suppuration in recent operation wound. *Lungs:* congested. *Heart:* muscle soft; shews cloudy swelling. *Liver:* soft, cloudy swelling of cells. General streptococcic infection.	.. .. ..	(i) April 18, '01 (ii) April 22, '01	

322 D.W.	C.R. 176 R.A. 63 P.M. 48/00	F	67	Carcinoma of left breast. Spheroidal-celled growth.	Supra-clavicular lymph-glands, both lungs, liver, both adrenal glands, spleen.	*Lungs:* pleural effusion on both sides. *Liver:* in condition of fatty degeneration (weight 42 ozs.).	(ii) Body wasted.	(i) Aug. 23, '00 (ii) Sept. 9, '00	(i) 6 years.
323 E.M.	C.R. 291 R.A. 119 P.M. 16/01	F	67	Carcinoma of left breast, extending over front of chest wall and infiltrating sternum. Spheroidal-celled growth.	Axillary lymph-glands, right pleural membrane, epicardium, left cardiac auricle, lungs, liver, portal lymph-glands, pancreas, right adrenal gland, lumbar vertebræ.	*Lungs:* numerous caseous nodules. *Heart:* minute vegetations on aortic valve. Adenoid polypus of sigmoid flexure of colon. Interstitial fibromyomata of uterus.	(ii) Very marked wasting of body.	(i) Nov. 16, '00 (ii) Mar. 6, '01	(i) 12 months.
324 E.M.	C.R. 678 R.A. 261 P.M. 79/02	F	68	Carcinoma of left breast (removed). Spheroidal-celled growth.	Axillary lymph-glands (left side), liver, pleura.	*Lungs:* cicatrisation at each apex; collapse of left lower lobe; 10 ozs. fluid in left pleura. *Gall-bladder:* exit closed, contains pus and calculi. *Kidneys:* granular.	(ii) Body well nourished.	(i) July 19, '02 (ii) Oct. 25, '02	
325 L.S.	C.R. 287 R.A. 115 P.M. 12/01	F	69	Carcinoma of right breast. Spheroidal-celled growth.	Right axillary lymph-glands, pleural membrane on both sides, *both lungs.	*Lungs:* bronchitis, numerous pleural adhesions. *Heart:* mitral and tricuspid valves somewhat dilated, small vegetations on aortic valves. *Liver:* advanced fatty degeneration (weight 74¼ ozs.); a crystalline calculus in bladder. Atheroma of vessels at base of brain.	(i) Foramen ovale patent. (ii) Body well nourished.	(i) Dec. 12, '00 (ii) Feb. 18, '01	(i) About 12 months.
326 M.C.	C.R. 31 R.A. 10 P.M. 37/00	F	70	Carcinoma of left breast. Spheroidal-celled growth.	Pleura, parietal and visceral pericardium.	Blood-stained pleural effusion on both sides. Single large calculus in gall-bladder. *Kidneys:* congested.	.. .. ..	(i) Nov. 1, 1899 (ii) Feb. 14, '00	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
327 N.G.	C.R. 151 R.A. 48 P.M. 34/00	F	70	Carcinoma of left breast, extending through chest wall to parietal pleural membrane. Spheroidal-celled growth.	Liver, pancreas, right adrenal gland.	*Lungs:* bronchitis; cicatrisation at right apex. Sub-peritoneal fibromyoma of uterus. Small cysts beneath serous coat of upper end of rectum.	(i) Foramen ovale patent. (ii) Body well nourished.	(i) Mar. 31. '00 (ii) Aug. 3, '00	
328 M.B.	C.R. 730 R.A. 282 P.M. 96/02	F	74	Carcinoma of right breast, invading axilla and neck of humerus. Spheroidal-celled growth.	Right axillary lymph-glands.	*Lungs:* emphysema. *Liver:* small, in state of fatty degeneration (weight 28½ ozs.).	.. .. ..	(i) June 21, '02 (ii) Dec. 30, '02	
329 M.A.B.	C.R. 698 R.A. 267 P.M. 85/02	F	75	Carcinoma of left breast, infiltrating sternum. Spheroidal-celled growth.	Right breast, axillary lymph-glands (left and right), liver.	*Lungs:* caseous and thickened areas; slight bronchitis. *Heart:* slight incompetence of pulmonary valve through loss of edge of one cusp. *Thyroid gland:* colloid cyst. *Liver:* in condition of fatty degeneration (weight 43 ozs.). *Kidneys:* granular. *Uterus:* polypus in cavity of body.	(ii) Body very wasted and crooked.	(i) Dec. 23, '01 (ii) Nov. 22, '02	
330 E.O.	C.R. 184 R.A. 69 P.M. 69/01	F	64	Carcinoma of right breast. Columnar-celled growth.	Right axillary and supra-clavicular glands, nodules in subcutaneous tissue on front of chest, liver.	*Lungs:* grey miliary tubercles in both lungs and on visceral pleura; upper lobe of right lung congested, lowest lobe collapsed; effusion into right pleural sac. *Heart:* grey miliary tubercles on pericardium. *Liver:* in condition of chronic congestion. Multiple ulcers on mucous membrane of duodenum. Large cystic adenoma of right ovary.	(ii) Body much wasted.	(i) Sept. 6, '01 (ii) Nov. 4, '01	

331 W.B.	C.R. 295 R.A. 121 P.M. 19/01	M	75	Carcinoma of scalp, involving cranial bones and frontal convolutions of cerebrum. Squamous-celled growth.	Both lungs.	*Lungs* : pneumonia in left lower lobe. *Heart* : minute vegetations on aortic valve, thickening of cusps. *Liver* : in condition of fatty degeneration (weight $53\frac{3}{4}$ ozs.). Cystic degeneration of both adrenal glands.	(ii) Considerable wasting of body.	(i) Oct. 3, '00 (ii) Mar. 10, '01
332 S.W.	C.R. 137 R.A. 276 P.M. 72/02	F	50	Carcinoma of scalp (right side). Squamous-celled growth.	Cervical lymph-glands (right side).	*Lungs* : slight bronchitis in left.	.. .. ..	(i) July 28, '02 (ii) Oct. 4, '02
333 A.P.	C.R. 587 R.A. 275 P.M. 70/02	M	46	Carcinoma of larynx (right side only). Squamous-celled growth.	*Cervical lymph-glands on both sides.	*Lungs* : caseous nodules and thickening at each apex. *Heart* : two aortic cusps adhere partly ; slight incompetence.	(ii) Body wasted.	(i) Sept. 4, '02 (ii) Sept. 25, '02
334 H.J.B.	C.R. 606 R.A. 239 P.M. 53/02	M	52	Carcinoma of larynx, involving root of tongue. Squamous-celled growth.	Cervical and *submaxillary lymph-glands.	*Lungs* : slight bronchitis.	(ii) Some wasting of body. Patent tracheotomy wound.	(i) Dec. 9, '01 (ii) July 13, '02
335 F.R.S.	C.R. 615 R.A. 242 P.M. 57/02	M	59	Carcinoma of larynx, involving fauces and root of tongue, invading left lobe of thyroid gland. Squamous-celled growth.	Left cervical lymph-glands, œsophagus.	*Lungs* : emphysema. In left lung cicatrix at apex and bronchopneumonia of lower lobe. *Heart* : minute vegetations on the aortic cusps. Atheroma of iliac arteries. *Liver* : in condition of chronic congestion (weight $34\frac{1}{2}$ ozs.). *Kidneys* : granular. Small hard nodule in wall of stomach. Small lipoma in serous coat of ileum. Small fibroma of right epididymis.	(ii) Marked wasting of body. Patent tracheotomy wound.	(i) Sept. 21, '01 (ii) July 28, '02

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
336 C.B.	C.R. 158 R.A. 53 P.M. 39/00	M	62	Carcinoma of larynx, extending from root of tongue to neighbourhood of true vocal cords, with complete destruction of epiglottis. Squamous-celled growth.	.. ..	*Lungs :* broncho-pneumonia on both sides; caseous nodules in upper lobes on both sides. *Heart :* some dilatation of right ventricle. Atheromatous degeneration of ascending aorta.	(ii) Body well nourished.	(i) May 21, '00 (ii) Aug. 8, '00	(i) 6 months.
337 L.S.	C.R. 578 R.A. 228 P.M. 42/02	F	27	Carcinoma of larynx, invading pharynx. Squamous-celled growth.	Visceral pleura.	*Lungs :* lobular pneumonia of right side. Slight cicatrisation at each apex. *Stomach :* small polypus on posterior wall. *Liver :* in condition of chronic congestion. Irregular calcareous nodules in mesentery.	(i) Minute 4th cusp to pulmonary valve. Foramen ovale patent. (ii) Body wasted. Tracheotomy wound open.	(i) May 21, '02 (ii) June 5, '02	
338 M.W.	C.R. 489 R.A. 192 P.M. 4/02	F	31	Carcinoma of larynx, involving upper part of œsophagus, trachea, and left lobe of thyroid gland. Squamous-celled growth.	.. ..	*Liver :* congested. *Kidneys :* congested. Lymphatic channels from the duodenum distended and blocked. Enlargement of lymph-glands to which these vessels run.	(ii) Wasting of body.	(i) Dec. 28, '01 (ii) Jan. 13, '02	
339 A.G.	C.R. 537 R.B. 333 P.M. 60/02	F	59	Carcinoma of left bronchus, extending into upper lobe of lung, and blocking lumen of bronchus. Columnar-celled growth.	Lymph-glands, liver, pancreas, and chest wall.	*Lungs :* right, emphysematous and congested; left lower lobe collapsed; left pleural effusion. *Kidneys :* small, fibrotic.	.. .. ..	(i) Mar. 20, '02 (ii) Mar. 23, '02	

340 M.H.	C.R. 256 R.B. 156 P.M. 286/00	F	64	Carcinoma of lung (bronchus), left lung collapsed, adherent to chest wall at back. Left pleural effusion. Columnar-celled growth.	Bronchial lymph-gland, liver, left kidney.	*Lung:* right side emphysema. Enlarged lumbar lymph-glands.	..	..	..	(i) Nov. 29, '00 (ii) Dec. 28, '00
341 E.C.	C.R. 695 R.B. 439 P.M. 232/02	F	71	Carcinoma of right bronchus, causing stenosis; growth ulcerating. Columnar-celled growth.	.. ..	*Lungs:* right collapsed; effusion into right pleura. *Liver:* fatty.	..	..	..	(i) Sept. 30, '02 (ii) Nov. 21, '02
342 J.S.	C.R. 634 R.B. 394 P.M. 169/02	M	58	Carcinoma of right lung (involving the pleura), lower lobe. Columnar-celled growth.	Bronchial lymph-glands.	*Heart:* coronary arteries atheromatous. *Liver:* cirrhotic.	..	..	..	(i) Aug. 28, '02 (ii) Sept. 4, '02

TABLE IV.

CASES NOT ENTERED IN CANCER REGISTER.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
343 G.J.S.	P.M. 76/02	M	60	Carcinoma of stomach, involving two-thirds of its body, near cardiac end.	Retroperitoneal lymph-glands.	*Lungs:* congested and œdematous. *Liver:* small.	.. .. ..	(i) April 15, '02 (ii) May 6, '02	
344 A.H.	P.M. 155/00	M	71	Carcinoma of stomach (pylorus).	.. ..	*Lungs:* emphysema. *Kidneys:* right fibrotic hydronephrosis on left side.	.. .. ..	(i) July 6, '00 (ii) July 14, '00	(ii) Gastro enterostomy.
345 J.P.	P.M. 235/02	F	53	Carcinoma of stomach (lesser curvature). Spheroidal-celled growth.	Liver, omentum and peritoneum, and lymph-glands.	.. ..	.. .. ..	(i) Sept. 9, '02 (ii) Nov. 27, '02	
346 T.N.	P.M. 11/00	M	48	Carcinoma of sigmoid flexure of colon, obstructing the lumen.	Lymph-glands, liver, spleen.	*Lungs:* emphysema. *Heart:* small; mucoid degeneration. Adhesions matting intestines. Free fluid in peritoneal cavity.	(ii) Body wasted. Artificial anus in left inguinal region.	(i) Nov. 28, 1898 (ii) Jan. 6, '00	
347 J.R.	P.M. 179/01	M	64	Carcinoma of colon (3 inches beyond ileocæcal valve).	Peritoneum, omentum and mesentery, liver.	*Heart:* dilated. Gall-bladder contains small calculi.	.. .. ..	(i) Aug. 13, '01 (ii) Sept. 1, '01	
348 H.J.	P.M. 146/01	M	33	Carcinoma of rectum (annular growth of first part). Columnar-celled growth.	Lumbar lymph-glands.	Peritonitis following perforation.	(ii) Recent incision in mid line of abdomen.	(i) July 3, '01 (ii) July 5, '01	

349 E.C.	P.M. 243/00	F	52	Carcinoma of bladder (close to neck).	.. ..	*Lungs :* œdema. *Heart :* muscle pale, soft, some chronic thickening of mitral cusps. *Liver :* very anæmic. *Kidneys :* hydronephrosis, dilated ureters. *Brain :* anæmic.	..	..	..	(i) Oct. 18, '00 (ii) Oct. 20, '00	
350 S.M.	P.M. 185/00	F	52	Carcinoma of uterus (corpus).	Liver, lungs.	*Kidneys :* hydronephrosis on both sides. Thrombosis of branch of middle cerebral artery on right side.	..	..	..	(i) July 10, '00 (ii) Aug. 10, '00	

TABLE V.

Cases of Sarcoma in which an Examination was made after Death.

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
351 M.P.	C.R. 292 R.A. 154 P.M 52/01	F	56	Sarcoma of scalp, invading occipital bone and underlying dura mater. Mixed round- and spindle-celled growth.	Both lungs.	.. ..	.. .. ..	(i) April 15, '01 (ii) Aug. 5, '01	(ii) Removal March 1901. Patient had had small sebaceous cyst on scalp for 20 years; 9 months previous to admission wounded it with a hairpin; it bled freely, and began to enlarge.
352 A.H.	C.R. 474 R.A. 186 P.M. 81/01	M	66	Sarcoma of skin of left heel. Round-celled growth, with melanotic pigmentation.	Left inguinal and aortic lymph-glands, right adrenal gland.	.. ..	(ii) Extreme wasting of body.	(i) May 23, '01 (ii) Dec. 21, '01	
353 G.D.	C.R. 234 R.B. 143 P.M. 262/00	M	45	Sarcoma of maxilla (right side).	.. ..	*Lungs:* congestion, broncho-pneumonia. *Heart:* dilated and hypertrophied. Purulent meningitis, left lateral sinus thrombosis.	.. .. ..	(i) Nov. 13, '00 (ii) Nov. 20, '00	(ii) Removal of right maxilla. Laryngotomy Nov. 14, 1900.
354 W.J.	C.R. 50 R.B. 35 P.M. 70/00	M	73	Sarcoma of antrum of left maxilla, recurrence after removal. Small round-celled growth.	Liver, right kidney, cortex of right cerebral hemisphere.	*Lungs:* septic broncho-pneumonia.	.. .. ..	(i) Feb. 22, '00 (ii) Mar. 18, '00	(ii) Excision of left maxilla.
355 E.B.	C.R. 29 R.A. 9 P.M. 13/00	F	42	Sarcoma of palate bones, invading ethmoid and sphenoid bones. Spindle-celled growth.	Right cervical lymph-glands.	*Lungs:* broncho-pneumonia in right middle lobe. Small interstitial fibromyomata of uterus.	(ii) Very marked wasting of body.	(i) Jan. 23, '00 (ii) April 23, '00	

356 W.F.	C.R. 110 R B. 75 P.M. 123/00	M	63	Sarcoma of mandible. Round-celled growth.	.. ..	*Lungs :* congested, bronchitis, early broncho-pneumonia *Heart :* a little enlarged. *Liver :* fatty. *Kidneys :* fibrotic.	.. .. ..	(i) June 6, '00 (ii) June 13, '00	(ii) Removal of left half of mandible.
357 E.P.	C.R. 18 R.A. 7 P.M. 27/00	F	36	Sarcoma of pubes. Mixed-celled growth.	.. ..	*Lungs :* emphysema. *Heart :* very small (5½ ozs.). *Kidneys :* ascending pyelonephritis, chiefly left side.	.. .. ..	(i) Nov. 25, 1899 (ii) Feb. 2, '00	
358 J.S.H.	C.R. 133 R.A. 41 P.M. 29/00	M	19	Sarcoma of right os ilium, invading head of femur. Mixed round-celled growth.	Right lung, large mass of colloid material filling right side of scrotum.	*Lungs :* œdema on both sides.	(i) Foramen ovale patent. (ii) Body much wasted.	(i) Feb. 16, '00 (ii) July 13, '00	
359 A.B.	C.R. 224 R.A. 87 P.M. 69/00	F	40	Sarcoma of right os ilium. Round-celled growth.	.. ..	*Lungs :* emphysematous. *Liver :* in condition of fatty degeneration. *Bladder :* sessile papillomatous growths of mucous membrane, cystitis, phosphatic calculi. Small submucous fibromyoma of uterus.	(ii) Body much wasted.	(i) Sept. 24, '00 (ii) Nov. 5, '00	
360 E.C.	C.R. 233 R.A. 84 P.M. 75/00	F	15	Sarcoma of left femur, invading os ilium. Small round-celled growth.	*Inguinal and *mesenteric lymph-glands, lung, *posterior mediastinal lymph-glands, thoracic vertebræ, right scapula, left cervical lymph-glands.	*Lungs :* bilateral pleural effusion; left lung and lowest lobe of right lung collapsed. *Liver :* enlarged; in condition of fatty degeneration.	(ii) Body well nourished.	(i) Sept. 12, '00 (ii) Nov. 18, '00	
361 A.M.H.	C.R. 243 R.A. 144 P.M. 42/01	F	26	Sarcoma growing from tissue of left ischio-rectal fossa, invading left labium of vulva, and forming large intra-pelvic mass of new growth. Round-celled growth.	*Inguinal, pelvic, aortic, and left supra-clavicular lymph-glands.	*Lungs :* bronchitis. *Kidneys :* large cyst, containing clear fluid, beneath capsule of left kidney; hydronephrosis on same side. Numerous ulcers of mucous lining of colon. Large retro-peritoneal hernial sac containing eight feet length of small intestine.	(ii) Extreme wasting of body.	(i) Jan. 31, '01 (ii) June 25, '01	(ii) Excision of growth with lower end of rectum Dec. 1900 (Middlesex Hospital).

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
362 M.A.N.	C.R. { 142 270 R.A. 106 P.M. 18/01	F	56	Sarcoma growing from ischio-rectal fossa. Small round-celled growth.	Inguinal, iliac, and mesenteric lymph-glands, liver, *both lungs, pancreas, *adrenal gland.	*Lungs :* caseous and calcareous nodules in both lungs. Ulceration of right arytenoid cartilage. Cystitis.	(ii) Marked wasting of body.	(i) Nov. 28, '00 (ii) Mar. 9, '01	
363 J.C.	C.R. 342 R.B. 204 P.M. 124/01	M	32	Sarcoma of omentum, infiltrating mesentery, pancreas, and kidneys. Round-celled growth.	Heart, several nodules on wall undergoing colloid changes.	.. ..	.. .. ..	(i) May 30, '01 (ii) June 4, '01	
364 T.P.	C.R. 28 R.B. 20 P.M. 35/00	M	48	Malignant peritonitis; large tumour in abdominal cavity compressing viscera. Sarcoma.	.. ..	*Lungs :* œdematous. *Heart :* small œdema of muscle ; gall-bladder distended ; ascites, 5 pints.	.. .. ..	(i) July 25, 1899 (ii) Jan. 13, '00	
365 L.N.	C.R. 97 R.A. 31 P.M. 17/00	F	35	Sarcoma of left cervical lymph-glands. Round-celled growth.	Left *inguinal and lumbar lymph-glands, liver.	*Lungs :* bronchitis and disseminated lobular pneumonia. *Heart :* atrophy, with brown degeneration. *Liver :* shews signs of chronic congestion.	(ii) Body much wasted.	(i) May 5, '00 (ii) May 19, '00	
366 E.I.	C.R. 401 R.A. 160 P.M. 58/01	F	50	Sarcoma of pelvic lymph-glands on left side. Round-celled growth.	Lumbar, left inguinal, and left supra-clavicular lymph-glands.	*Heart :* minute vegetations on one of aortic cusps. *Liver :* surface presents several nævoid areas. *Kidneys :* pale and granular in appearance.	(i) Foramen ovale patent. (ii) Body extremely wasted and anæmic. Œdema of both legs and left forearm.	(i) Aug. 5, '01 (ii) Sept. 12, '01	
367 J.N.	C.R. 374 R.B. 226 P.M. 157/01	M	41	Sarcoma of stomach (pylorus). Round-celled growth.	.. ..	Recent gastro-jejunostomy. *Heart :* small, muscle pale.	.. .. ..	(i) June 27, '01 (ii) July 24, '01	

368 W.M.	C.R. 271 R.B. 165 P.M. 23/01	M	61	Sarcoma of stomach. Round - celled growth.	.. ..	*Lungs :* œdematous. *Heart :* thickening of mitral valve.	.. .. ..	(i) Dec. 20, '00 (ii) Jan. 16, '01	
369 T.J.	C.R. 406 R.A. 162 P.M. 60/01	M	65	Sarcoma of rectum. Mixed round-celled growth; melanotic pigmentation.	*Right inguinal, iliac, *lumbar, and mesenteric lymph-glands, liver, lungs, stomach, pancreas, wall of right auricle of heart, thyroid gland, cerebrum.	*Lungs :* cicatrisation at both apices. *Kidneys :* hydronephrosis on right side. Middle lobe of prostate gland much enlarged.	(ii) Body much wasted. Artificial anus in left inguinal region.	(i) Aug. 16, '01 (ii) Sept. 20, '01	
370 E.C.W.	C.R. 188 R.A. 71 P.M. 55/00	F	40	Sarcoma of rectum. Mixed round-celled growth.	Lumbar lymph-glands, liver.	*Lungs :* emphysematous.	(ii) Extreme wasting of body. Recto-vaginal fistula.	(i) May 24, '00 (ii) Sept. 22, '00	
371 A.B.	C.R. 246 R.B. 149 P.M. 272/00	F	41	Sarcoma of rectum. Small round-celled growth.	.. ..	*Lungs :* congested. *Intestines :* distended. *Uterus:* numerous fibromyomata; right ovary cystic.	.. .. ..	(i) Nov. 24, '00 (ii) Dec. 7, '00	(ii) Left ovary recently removed.
372 J.P.	C.R. 205 R.B. 126 P.M. 229/00	M	50	Sarcoma of left kidney (removed), involving adrenal. Large round-celled growth.	Brain, left frontal and both occipital lobes.	*Heart :* enlarged, both ventricles dilated.	.. .. ..	(i) Aug. 8, '00 (ii) Oct. 6, '00	(ii) Recent removal of left kidney.
373 V.G.	C.R. 267 R.B. 164 P.M. 18/01	F	17	Sarcoma of ovary. Round - celled growth.	Pelvic and lumbar lymph-glands, liver.	*Kidneys :* bilateral hydronephrosis. Recent abdominal incision.	.. .. ..	(i) Jan. 12, '01 (ii) Jan. 14, '01	
374 E.B.	C.R. 648 R.B. 405 P.M. 183/02	F	53	Sarcoma of ovary, infiltrating omentum and peritoneum. Mixed - celled growth.	.. ..	Peritoneal adhesions, effusion of 56 ozs. thick blood-stained fluid.	.. .. ..	(i) Sept. 8, '02 (ii) Sept. 20, '02	
375 J.B.	C.R. 124 R.B. 84 P.M. 126/00	F	52	Sarcoma of uterus (corpus).	.. ..	*Heart :* small. *Liver :* enlarged, congested. Numerous calculi in gall-bladder. *Spleen :* very greatly enlarged (50½ ozs.).	.. .. ..	(i) Mar. 2, '00 (ii) June 16, '00	

No.	Reference Numbers.	Sex.	Age at death.	Part primarily affected, and nature of new growth.	Secondary formations of new growth.	Other morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.	(i) Duration of disease on admission. (ii) Surgical operation, if any.
376 M.A.K.	C.R. 290 R.A. 118 P.M. 15/01	F	53	Sarcoma of uterus, recurrence in vault of vagina and in bladder after operation for removal of uterus. Small round-celled growth.	Left ovary.	*Lungs :* emphysematous, cicatrisation at right apex. *Heart :* dilatation of tricuspid valve. *Liver :* single calculus in bladder. *Kidneys :* bilateral hydronephrosis.	(ii) Body well nourished.	(i) Oct. 20, '00 (ii) Mar. 3, '01	(i) 33 months. (ii) Removal of uterus, Jan. 1898. Recurrence was observed at beginning of 1900.
377 S.E.M.	C.R. 77 R.A. 23 P.M. 9/00	F	55	Sarcoma of uterus, recurrence of growth after operation for removal of organ, forms a large mass in the pelvis, in which the ovaries are lost. Small round-celled growth.	.. ..	Acute purulent peritonitis.	(ii) Cicatrix of median abdominal incision for complete hysterectomy.	(i) Feb. 12, '00 (ii) April 15, '00	(i) 6 months. (ii) Abdominal hysterectomy at Charing Cross Hospital in Nov. 1899.
378 E.C.	C.R. 153 R.A. 50 P.M. 36/00	F	58	Sarcoma of uterus (? cervix), involving body of organ. Large round-celled growth.	.. ..	*Lungs :* emphysematous. *Heart :* atrophy, with brown degeneration (weight 6 ozs.). Numerous old pelvic adhesions.	(ii) Extreme wasting of body.	(i) Nov. 20, 1897 (ii) Aug. 5, '00	(i) About 5 years.
379 E.W.	C.R. 595 R.A. 233 P.M. 47/02	F	68	Sarcoma of uterus (cervix), involving body of organ and invading vagina and bladder. Vesico-vaginal fistula. Spindle-celled growth.	.. ..	*Thyroid gland :* two small colloid cysts in one lobe. *Liver :* in state of fatty degeneration (weight $40\frac{1}{4}$ ozs.). *Kidney :* hydronephrosis left side. Vesico-vaginal fistula. Acute general peritonitis, with thick exudation and some pus. Intestines adherent to top part of uterus.	(ii) Body wasted.	(i) April 15, '01 (ii) June 23, '02	

380 H.E.	C.R. 346 R.A. 138 P.M. 38/01	F	60	Sarcoma of right breast. Round-celled growth.	Right *axillary and supra-clavicular, aortic, *pelvic, and *inguinal lymph-glands, left breast, both pleural membranes, liver, both kidneys, both adrenal glands, pericranium and *dura mater.	*Heart:* minute vegetations on posterior aortic cusps. *Liver:* shews appearances of chronic congestion (weight 38 ozs.). Small polypus of uterine cervical canal.	(ii) Slight wasting of body.	(i) April 24, '00 (ii) June 6, '01	(ii) Small tumour removed from right breast 18 years ago, and which had then been noticed for 2 years. Sixteen years after operation small nodules formed in the right axilla, and about the old cicatrix these lumps ulcerated. During 2 years previous to admission, but after the recrudescence in the right breast, the left breast began to enlarge.
381 A.P.	C.R. 204 R.B. 125 P.M. 230/00	M	27	Cerebral tumour; anterior part of corpus callosum.	.. ..	*Lungs:* congested. *Kidneys:* congested. Blood clot in left lateral ventricle of brain.	.. .. ..	(i) Aug. 24, '00 (ii) Oct. 7, '00	
382 M.H.	C.R. 716 R.B. 453 P.M. 248/02	F	35	Sarcoma of left eye. Melanotic large round-celled growth.	Vertebral lymph-glands; liver (weight 278 ozs.); right kidney.	*Lungs:* œdematous.	.. .. ..	(i) Nov. 19, '02 (ii) Dec. 10, '02	
383 E.W.	C.R. 727 R.B. 459 P.M. 257/02	F	33	Sarcoma of right bronchus, causing some stenosis. Mixed round and spindle-celled growth.	Lymph-glands; liver.	*Lungs:* Right, dilated bronchi beyond the stenosis.	.. .. ..	(i) Dec. 1, '02 (ii) Dec. 20, '02	
384 C.S.	C.R. 209 R.B. 129 P.M. 237/00	F	50	Sarcoma of pleura and lung; right pleuræ thickened; effusions into right cavity; right lung compressed and infiltrated. Mixed-celled growth.	Liver, kidneys, lung (minute nodules).	*Heart:* small. *Uterus:* small fibromyoma in its wall. Right ovary cystic.	.. .. ..	(i) Sept. 21, '00 (ii) Oct. 14, '00	

TABLE VI.

PRINCIPAL CHANGES FOUND AT POST-MORTEM EXAMINATION OF CASES, OTHER THAN MALIGNANT DISEASE, ENTERED IN CANCER REGISTER.

No.	Reference Numbers.	Sex.	Age at death.	Morbid changes present.	(i) Congenital abnormalities. (ii) General remarks.	(i) Date of admission. (ii) Date of death.
385 H.S.P.	C.R. 709 R.A. 270 P.M. 89/02	M	56	Polypi of colon. *Lungs:* emphysema and œdema. *Liver:* in state of fatty degeneration and chronic congestion (weight $68\frac{3}{4}$ ozs.). *Colon:* studded with polypi throughout the greater part of its extent, and shews evidence of chronic inflammatory condition. Mesenteric lymph-glands indurated and slightly enlarged.	(ii) Body wasted.	(i) Sept. 6, '02 (ii) Nov. 30, '02
386 S.P.	C.R. 258 R.A. 101 P.M. 83/00	M	60	Ulceration of mucous membrane of lower end of œsophagus; no indication of any new growth. *Lungs:* disseminated lobular pneumonia on both sides. Fibroid degeneration of testicles.	(ii) Extreme wasting of body. Gastrostomy opening.	(i) Dec. 20, '00 (ii) Dec. 29, '00
387 J.W.	C.R. 618 R.B. 383 P.M. 146/02	M	64	Polypus of colon. *Lungs:* congested and very œdematous. *Heart:* fatty infiltration and dilatation. *Liver:* enlarged and cirrhotic. *Kidneys:* enlarged, congested, and fatty.	(ii) Body very stout. Inguinal colotomy (left).	(i) July 21, '02 (ii) July 29, '02
388 M.B.	C.R. 34 R.A. 12 P.M. 40/00	F	64	Fibroma of pancreas (head). Growth in tail of pancreas. *Lungs:* emphysema, broncho-pneumonia. *Liver:* congested. *Kidneys:* fibrotic. Atheroma of aorta. *Gall-bladder:* distended.	.. ..	(i) June 13, 1899 (ii) Feb. 18, '00
389 L.T.	R.A. 134 P.M. 32/01	F	43	Left ovarian abscess, tracking upwards along sheath of psoas muscle. *Lungs:* broncho-pneumonia on both sides; hæmorrhagic infarct in left lung. Pelvic peritonitis. Subserous and interstitial fibromyomata of uterus.	.. ..	(i) Mar. 22, '01 (ii) April 25, '01

390 L.S.	R.A. 139 P.M. 37/01	F	52	*Heart:* stenosis of mitral valve. *Liver:* in condition of fatty degeneration (weight 32½ ozs.). *Kidneys:* calculus in left gland. General suppurative peritonitis.	(ii) Recent median abdominal incision; hysterectomy June 1st, 1901, removal of uterus, containing sloughing fibromyomata, and in condition of endometritis.	(i) May 7, '01 (ii) June 4, '01
391 M.A.H.	R.A. 81 P.M. 65/00	F	62	Cystic adenoma of right ovary. *Liver:* in condition of fatty degeneration. *Kidneys:* chronic interstitial nephritis. Ascites.	(ii) Some wasting of body.	(i) Sept. 25, '00 (ii) Oct. 17, '00
392 A.E.	C.R. 48 R.A. 14 P.M. 2/00	F	89	Non-malignant cystic disease of left breast. *Lungs:* bronchitis. *Kidneys:* oxalate of lime calculus in left gland. Polypoid fibrolipoma, 2·5 cm. in diameter, of mucous membrane of small intestine. Small fibrolipoma at back of left shoulder.	.. ..	(i) Feb. 23, '00 (ii) Mar. 15, '00

With a few exceptions a microscopic examination has been made in each case of every organ in which there appeared to be any new growth: when this has not been done, the organ in which the nature of the new growth has not been verified microscopically is marked with an asterisk (*).

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VOLUME I.—NOVEMBER, 1903.

CONTENTS.

Two Cases of Hæmorrhagic Typhoid Fever. By JAMES KINGSTON FOWLER, M.A., M.D., F.R.C.P., and ALEXANDER G. R. FOULERTON, F.R.C.S.

An Essay on Dermoids of the Testis and Scrotum. By J. BLAND-SUTTON, F.R.C.S.

Two Cases of Spina Bifida, associated with defective development, and a Nævoid condition of the Spinal Cord, above the level of the Spina Bifida; with some remarks upon the Etiology of Spina Bifida. By REGINALD J. GLADSTONE, M.D., F.R.C.S.

Excision of Gasserian Ganglion. By ANDREW CLARK, F.R.C.S.

Knee-Jerk Phenomenon in Interstitial Keratitis (Congenital Syphilis); with a Scheme for Standardizing the Variations in the Phenomenon. By N. BISHOP HARMAN, M.A., M.B., F.R.C.S.

Notes on Four Cases of Duodenal Ulcer with recent Perforation. By W. ESSEX WYNTER, M.D., F.R.C.P.

The Comparative Histology of the Urethra. By J. STRICKLAND GOODALL, M.B. (Lond.).

The Treatment of Disease by different forms of Rays. By CECIL R. C. LYSTER.

An Improved Operation for the Relief of Ptosis Palpebræ. By N. BISHOP HARMAN, M.A., M.B., F.R.C.S.

A Preliminary Communication on some Cephalometric Data bearing upon the Relation of the Size and Shape of the Head to Mental Ability. By REGINALD J. GLADSTONE, M.D., F.R.C.S.

Some Remarks on Cancer of Liver and Pancreas. By W. T. HILLIER.

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